auditace.tech

AuditAce

FROM INCEPTION TO SUCCESS

Smart Contract Audit

FOR

SRG

DATED : 3 MAY 23'

AUDIT SUMMARY

Project name – SRG

Date: 3 May, 2023

Scope of Audit- Audit Ace was consulted to conduct the smart contract audit of the solidity source codes.

Audit Status: Passed

Issues Found

Status	Critical	High	Medium	Low	Suggestion
Open	0	0	0	0	1
Acknowledged	0	0	0	0	0
Resolved	0	0	0	0	0

USED TOOLS

Tools:

1.Manual Review: The code has undergone a line-by-line review by the Ace team.

2.BSC Test Network: All tests were conducted on the BSC Test network, and each test has a corresponding transaction attached to it. These tests can be found in the "Functional Tests" section of the report.

3.Slither: The code has undergone static analysis using Slither.

Token Information

Name : Scrooge Inu

Symbol : SRG

Decimals: 9

Network: Binance smart chain

Token Type: BEP20

Token Address :
0xC1A6287b092707470D0B549B7C97Be3dF4BE3399

Owner:
0x2ff99d19185BA938A6eA26182099efE820bbB91b
(at time of audit)

Deployer:
0x2ff99d19185BA938A6eA26182099efE820bbB91b

Token Information

Fees:

Buy Fees: up to 8%

Sell Fees: up to 8%

Transfer Fees: 8%

Fees Privilige: Owner

Ownership : Owned

Minting: None

Max Tx Amount/ Max Wallet Amount: Yes

Blacklist: No

Other Priviliges: Toggling internal swap - excluding wallets from fee - including wallets in fee - modifying fee

AUDIT METHODOLOGY

The auditing process will follow a routine as special considerations by Auditace:

- Review of the specifications, sources, and instructions provided to Auditace to make sure the contract logic meets the intentions of the client without exposing the user’s funds to risk.

- Manual review of the entire codebase by our experts, which is the process of reading source code line-by-line in an attempt to identify potential vulnerabilities.

- Specification comparison is the process of checking whether the code does what the specifications, sources, and instructions provided to Auditace describe.

- Test coverage analysis determines whether the test cases are covering the code and how much code isexercised when we run the test cases.

- Symbolic execution is analysing a program to determine what inputs cause each part of a program to execute.

- Reviewing the codebase to improve maintainability, security, and control based on the established industry and academic practices.

VULNERABILITY CHECKLIST

- ✓ Return values of low-level calls
- ✓ Private modifier
- ✓ Multiple Sends
- ✓ Using Suicide
- ✓ Gas Limitand Loops
- ✓ Address hardcoded
- ✓ Exception Disorder
- ✓ Using inline assembly
- ✓ Divide before multiply
- ✓ Missing Zero Address Validation
- ✓ Compiler version not fixed
- ✓ **Gasless Send**
- ✓ Using block.timestamp
- ✓ Re-entrancy
- ✓ Tautology or contradiction
- ✓ Timestamp Dependence
- ✓ Revert/require functions
- ✓ Use of tx.origin
- ✓ Integer overflow/underflow
- ✓ Dangerous strict equalities
- ✓ Using SHA3
- ✓ Using throw

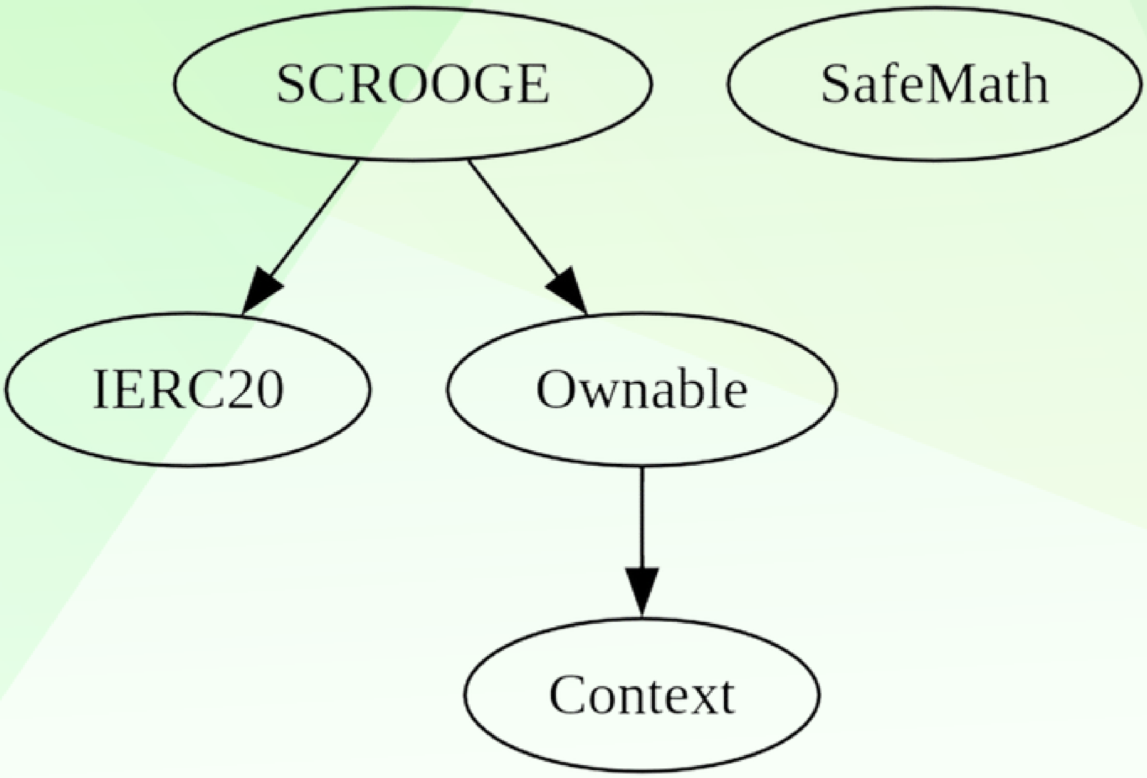
CLASSIFICATION OF RISK

Severity	Description
◆ Critical	These vulnerabilities could be exploited easily and can lead to asset loss, data loss, asset, or data manipulation. They should be fixed right away.
◆ High-Risk	A vulnerability that affects the desired outcome when using a contract, or provides the opportunity to use a contract in an unintended way.
◆ Medium-Risk	A vulnerability that could affect the desired outcome of executing the contract in a specific scenario.
◆ Low-Risk	A vulnerability that does not have a significant impact on possible scenarios for the use of the contract and is probably subjective.
◆ Gas Optimization /Suggestion	A vulnerability that has an informational character but is not affecting any of the code.

Findings

Severity	Found
◆ Critical	0
◆ High-Risk	0
◆ Medium-Risk	0
◆ Low-Risk	0
◆ Gas Optimization / Suggestions	1

INHERITANCE TREE



POINTS TO NOTE

- Owner is not able to set buy/sell/transfer fees over 8% each
- Owner is able to set max tx amount but not less than 0.1% of total supply
- Owner is not able to blacklist an arbitrary wallet
- Owner is not able to disable trades
- Owner is not able to mint new tokens
- Owner must enable trading for investors

CONTRACT ASSESMENT

```
| Contract | Type | Bases | | |
|:----------:|:-------------------:|:----------------:|:----------------:|:---------------:|
| └ | **Function Name** | **Visibility** | **Mutability** | **Modifiers** |
| **IERC20** | Interface | |||
| └ | totalSupply | External ❗ | |NO ❗ |
| └ | balanceOf | External ❗ | |NO ❗ |
| └ | transfer | External ❗ | 🛑 |NO ❗ |
| └ | allowance | External ❗ | |NO ❗ |
| └ | approve | External ❗ | 🛑 |NO ❗ |
| └ | transferFrom | External ❗ | 🛑 |NO ❗ |
||||||
| **SafeMath** | Library | |||
| └ | add | Internal 🔒 | | |
| └ | sub | Internal 🔒 | | |
| └ | sub | Internal 🔒 | | |
| └ | mul | Internal 🔒 | | |
| └ | div | Internal 🔒 | | |
| └ | div | Internal 🔒 | | |
||||||
| **Context** | Implementation | |||
| └ | _msgSender | Internal 🔒 | | |
| └ | _msgData | Internal 🔒 | | |
||||||
| **IDEXFactory** | Interface | |||
| └ | createPair | External ❗ | 🛑 |NO ❗ |
||||||
| **IPancakePair** | Interface | |||
| └ | sync | External ❗ | 🛑 |NO ❗ |
||||||
| **IDEXRouter** | Interface | |||
| └ | factory | External ❗ | |NO ❗ |
| └ | WETH | External ❗ | |NO ❗ |
| └ | addLiquidityETH | External ❗ | 💵 |NO ❗ |
| └ | swapExactTokensForETHSupportingFeeOnTransferTokens | External ❗ | 🛑 |NO ❗ |
||||||
| **Ownable** | Implementation | Context |||
| └ | <Constructor> | Public ❗ | 🛑 |NO ❗ |
| └ | owner | Public ❗ | |NO ❗ |
| └ | renounceOwnership | Public ❗ | 🛑 | onlyOwner |
| └ | transferOwnership | Public ❗ | 🛑 | onlyOwner |
||||||
| **SCROOGE** | Implementation | IERC20, Ownable |||
| └ | <Constructor> | Public ❗ | 🛑 |NO ❗ |
```

CONTRACT ASSESMENT

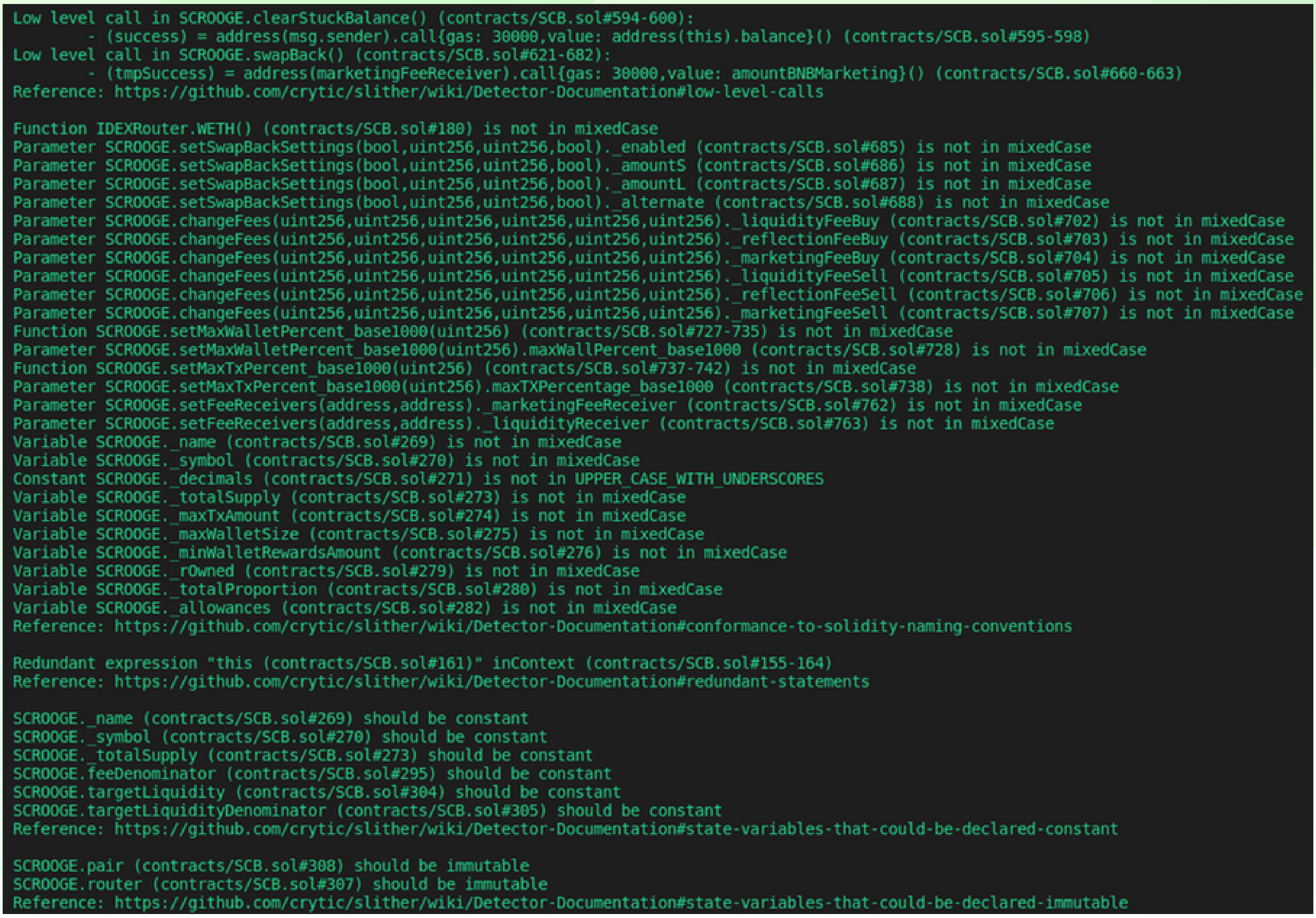
```
| └ | <Receive Ether> | External ❗ | 💵 |NO ❗ |
| └ | totalSupply | External ❗ |  |NO ❗ |
| └ | decimals | External ❗ |  |NO ❗ |
| └ | name | External ❗ |  |NO ❗ |
| └ | symbol | External ❗ |  |NO ❗ |
| └ | getOwner | External ❗ |  |NO ❗ |
| └ | balanceOf | Public ❗ |  |NO ❗ |
| └ | allowance | External ❗ |  |NO ❗ |
| └ | viewFeesBuy | External ❗ |  |NO ❗ |
| └ | viewFeesSell | External ❗ |  |NO ❗ |
| └ | approve | Public ❗ | 🛑 |NO ❗ |
| └ | approveMax | External ❗ | 🛑 |NO ❗ |
| └ | transfer | External ❗ | 🛑 |NO ❗ |
| └ | transferFrom | External ❗ | 🛑 |NO ❗ |
| └ | _transferFrom | Internal 🔒 | 🛑 | |
| └ | tokensToProportion | Public ❗ |  |NO ❗ |
| └ | tokenFromReflection | Public ❗ |  |NO ❗ |
| └ | _basicTransfer | Internal 🔒 | 🛑 | |
| └ | shouldTakeFee | Internal 🔒 |  | |
| └ | checkTxLimit | Internal 🔒 |  | |
| └ | getTotalFeeBuy | Public ❗ |  |NO ❗ |
| └ | getTotalFeeSell | Public ❗ |  |NO ❗ |
| └ | takeFeeInProportions | Internal 🔒 | 🛑 | |
| └ | clearStuckBalance | External ❗ | 🛑 | onlyOwner |
| └ | clearForeignToken | Public ❗ | 🛑 |NO ❗ |
| └ | shouldSwapBack | Internal 🔒 |  | |
| └ | swapBack | Internal 🔒 | 🛑 | swapping |
| └ | setSwapBackSettings | External ❗ | 🛑 | onlyOwner |
| └ | enableTrading | Public ❗ | 🛑 | onlyOwner |
| └ | changeFees | External ❗ | 🛑 | onlyOwner |
| └ | setMaxWalletPercent_base1000 | External ❗ | 🛑 | onlyOwner |
| └ | setMaxTxPercent_base1000 | External ❗ | 🛑 | onlyOwner |
| └ | setIsFeeExempt | External ❗ | 🛑 | onlyOwner |
| └ | setIsTxLimitExempt | External ❗ | 🛑 | onlyOwner |
| └ | setMinWalletRewardAmount | External ❗ | 🛑 | onlyOwner |
| └ | setFeeReceivers | External ❗ | 🛑 | onlyOwner |
| └ | getCirculatingSupply | Public ❗ |  |NO ❗ |
| └ | getLiquidityBacking | Public ❗ |  |NO ❗ |
| └ | isOverLiquified | Public ❗ |  |NO ❗ |
```

CONTRACT ASSESMENT

Legend

Symbol	Meaning
🛑	Function can modify state
💵	Function is payable

STATIC ANALYSIS



```
Low level call in SCROOGE.clearStuckBalance() (contracts/SCB.sol#594-600):
        - (success) = address(msg.sender).call{gas: 30000,value: address(this).balance}() (contracts/SCB.sol#595-598)
Low level call in SCROOGE.swapBack() (contracts/SCB.sol#621-682):
        - (tmpSuccess) = address(marketingFeeReceiver).call{gas: 30000,value: amountBNBMarketing}() (contracts/SCB.sol#660-663)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls

Function IDEXRouter.WETH() (contracts/SCB.sol#180) is not in mixedCase
Parameter SCROOGE.setSwapBackSettings(bool,uint256,uint256,bool)._enabled (contracts/SCB.sol#685) is not in mixedCase
Parameter SCROOGE.setSwapBackSettings(bool,uint256,uint256,bool)._amountS (contracts/SCB.sol#686) is not in mixedCase
Parameter SCROOGE.setSwapBackSettings(bool,uint256,uint256,bool)._amountL (contracts/SCB.sol#687) is not in mixedCase
Parameter SCROOGE.setSwapBackSettings(bool,uint256,uint256,bool)._alternate (contracts/SCB.sol#688) is not in mixedCase
Parameter SCROOGE.changeFees(uint256,uint256,uint256,uint256,uint256,uint256)._liquidityFeeBuy (contracts/SCB.sol#702) is not in mixedCase
Parameter SCROOGE.changeFees(uint256,uint256,uint256,uint256,uint256,uint256)._reflectionFeeBuy (contracts/SCB.sol#703) is not in mixedCase
Parameter SCROOGE.changeFees(uint256,uint256,uint256,uint256,uint256,uint256)._marketingFeeBuy (contracts/SCB.sol#704) is not in mixedCase
Parameter SCROOGE.changeFees(uint256,uint256,uint256,uint256,uint256,uint256)._liquidityFeeSell (contracts/SCB.sol#705) is not in mixedCase
Parameter SCROOGE.changeFees(uint256,uint256,uint256,uint256,uint256,uint256)._reflectionFeeSell (contracts/SCB.sol#706) is not in mixedCase
Parameter SCROOGE.changeFees(uint256,uint256,uint256,uint256,uint256,uint256)._marketingFeeSell (contracts/SCB.sol#707) is not in mixedCase
Function SCROOGE.setMaxWalletPercent_base1000(uint256) (contracts/SCB.sol#727-735) is not in mixedCase
Parameter SCROOGE.setMaxWalletPercent_base1000(uint256).maxWallPercent_base1000 (contracts/SCB.sol#728) is not in mixedCase
Function SCROOGE.setMaxTxPercent_base1000(uint256) (contracts/SCB.sol#737-742) is not in mixedCase
Parameter SCROOGE.setMaxTxPercent_base1000(uint256).maxTXPercentage_base1000 (contracts/SCB.sol#738) is not in mixedCase
Parameter SCROOGE.setFeeReceivers(address,address)._marketingFeeReceiver (contracts/SCB.sol#762) is not in mixedCase
Parameter SCROOGE.setFeeReceivers(address,address)._liquidityReceiver (contracts/SCB.sol#763) is not in mixedCase
Variable SCROOGE._name (contracts/SCB.sol#269) is not in mixedCase
Variable SCROOGE._symbol (contracts/SCB.sol#270) is not in mixedCase
Constant SCROOGE._decimals (contracts/SCB.sol#271) is not in UPPER_CASE_WITH_UNDERSCORES
Variable SCROOGE._totalSupply (contracts/SCB.sol#273) is not in mixedCase
Variable SCROOGE._maxTxAmount (contracts/SCB.sol#274) is not in mixedCase
Variable SCROOGE._maxWalletSize (contracts/SCB.sol#275) is not in mixedCase
Variable SCROOGE._minWalletRewardsAmount (contracts/SCB.sol#276) is not in mixedCase
Variable SCROOGE._rOwned (contracts/SCB.sol#279) is not in mixedCase
Variable SCROOGE._totalProportion (contracts/SCB.sol#280) is not in mixedCase
Variable SCROOGE._allowances (contracts/SCB.sol#282) is not in mixedCase
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions

Redundant expression "this (contracts/SCB.sol#161)" inContext (contracts/SCB.sol#155-164)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#redundant-statements

SCROOGE._name (contracts/SCB.sol#269) should be constant
SCROOGE._symbol (contracts/SCB.sol#270) should be constant
SCROOGE._totalSupply (contracts/SCB.sol#273) should be constant
SCROOGE.feeDenominator (contracts/SCB.sol#295) should be constant
SCROOGE.targetLiquidity (contracts/SCB.sol#304) should be constant
SCROOGE.targetLiquidityDenominator (contracts/SCB.sol#305) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant

SCROOGE.pair (contracts/SCB.sol#308) should be immutable
SCROOGE.router (contracts/SCB.sol#307) should be immutable
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-immutable
```

Result => A static analysis of contract's source code has been performed using slither,

No issues found

FUNCTIONAL TESTING

1- Adding liquidity (passed):
https://testnet.bscscan.com/tx/0x528daa394eafe3c274369bc6fd1685e0fe6d7cd0416d76af65087ef10a213175

2- Buying when excluded from fees (0% tax) (passed)**:**
https://testnet.bscscan.com/tx/0x5dbdf3b07fc5f5a9c681761ad01a3c75203ea76160de25f150fb0370bc38ae13

3- Selling when excluded from fees (0% tax) (passed)**:**
https://testnet.bscscan.com/tx/0x949a3aab985523beeecc8ef76c7f071cfc89fdd4a8b9b1fcdf159443180d4145

4- Transferring when excluded from fees (0% tax) (passed)**:**
https://testnet.bscscan.com/tx/0xa38cc1f17ce16507c44d40c2c439c0f9e839f8a65dbce61bdd85212d77f33294

5- Buying when not excluded from fees (up to 12% tax) (passed)**:**
https://testnet.bscscan.com/tx/0x6d81ddbd8771f60b40229afe1f66bad3996a00f8a7c1c306b74cf484399e67a5

6- Selling when not excluded from fees (up to 12% tax) (passed)**:**
https://testnet.bscscan.com/tx/0x3280b6d5558ef6512ad6d3af3103e1f6b3ccba3257b738bc914f6df1a093f821

7- Transferring when not excluded from fees (0% tax) (passed)**:**
https://testnet.bscscan.com/tx/0x8250e159bc31e3a474b11ddf70c91631a9f9086183c489d6d8c48bead5985863

FUNCTIONAL TESTING

8- Internal swap (passed):

As can seen in this transaction, marketing wallet received BNB

https://testnet.bscscan.com/token/0xbaf6001499915a03b5dd2e020e9e721df4e36955?a=0x322dab6325de6f5bc2ba8efecc2bcbecac4f89f3

9- Auto Liquidity (passed):

Auto liquidity generated tokens are burnt, as can be seen in this transaction

https://testnet.bscscan.com/token/0xbaf6001499915a03b5dd2e020e9e721df4e36955?a=0x322dab6325de6f5bc2ba8efecc2bcbecac4f89f3

MANUAL TESTING

Centralization - Owner must enable trading

Severity: Informational

Function: enableTrading

Status: Not Resolved

Overview:

The owner must activate trading for investors to buy, sell, or transfer tokens. If trading remains disabled, token holders will be unable to trade their tokens.

```
function enableTrading() public onlyOwner {
    tradingOpen = true;
}
```

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