

**S O L I D I T Y . F I N A N C E**

SOAR Liquidity Migrator - Smart Contract Audit Report

S U M M A R Y



SOAR is a decentralized framework for liquidity control and a liquidity bootstrapping protocol.

We reviewed SOAR Liquidity Migrator's using code provided to us by the team. That code, in flattened form, is available below. Please note we have not reviewed SOAR's other contracts;

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Notes on the Contract:

- *The purpose of the Liquidity Migrator contract is to migrate liquidity provided on Uniswap for other projects to provide liquidity for SOAR.*
- *LP tokens representing liquidity in other projects can be used by this contract to migrate those funds to provide liquidity for SOAR.*
- *When a user sends their LP tokens to this contract using the migrate() function, their liquidity will be withdrawn in the form of the project token liquidity was provided for, and ETH.*
- *If the prior project tokens can be sold for more than the MIN_ETH value of 0.5 ETH at 15% slippage, then they will be sold and that ETH added to the contract's balance. If it is not profitable, they will be returned to the function caller.*
- *Half of the ETH from this process will then be used to purchase SOAR tokens; and the combination of the remaining ETH and SOAR will be added to the SOAR liquidity pool.*
- *Finally, the SOAR LP tokens created as a result of this process will be delivered to the caller.*
- *15% slippage may allow frontrunners to extract value from migrations. Our recommendation to resolve this would be to allow the users to provide the slippage as an input variable to*

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components.

- *Large migrations of liquidity may have a negative price impact, though the amount of liquidity available will increase.*
- *No ownership-restricted functions are present.*
- *A slight gas optimization can be achieved by setting the MIN_ETH variable as constant.*
- *Utilization of SafeMath and SafeERC20 to prevent overflow issues and ensure safe transfers.*

Audit Findings Summary

- *No issues from external attackers were identified.*
- *Date: March 13th, 2021*

External Threat Results

Vulnerability Category	Notes	Result
Arbitrary Storage Write	N/A	PASS

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Vulnerability Category	Notes	Result
Delegate Call to Untrusted Contract	N/A	PASS
Dependence on Predictable Variables	N/A	PASS
Deprecated Opcodes	N/A	PASS
Ether Thief	N/A	PASS
Exceptions	N/A	PASS
External Calls	N/A	PASS
Integer Over/Underflow	N/A	PASS
Multiple Sends	N/A	PASS
Suicide	N/A	PASS
State Change External Calls	N/A	PASS
Unchecked Retval	N/A	PASS

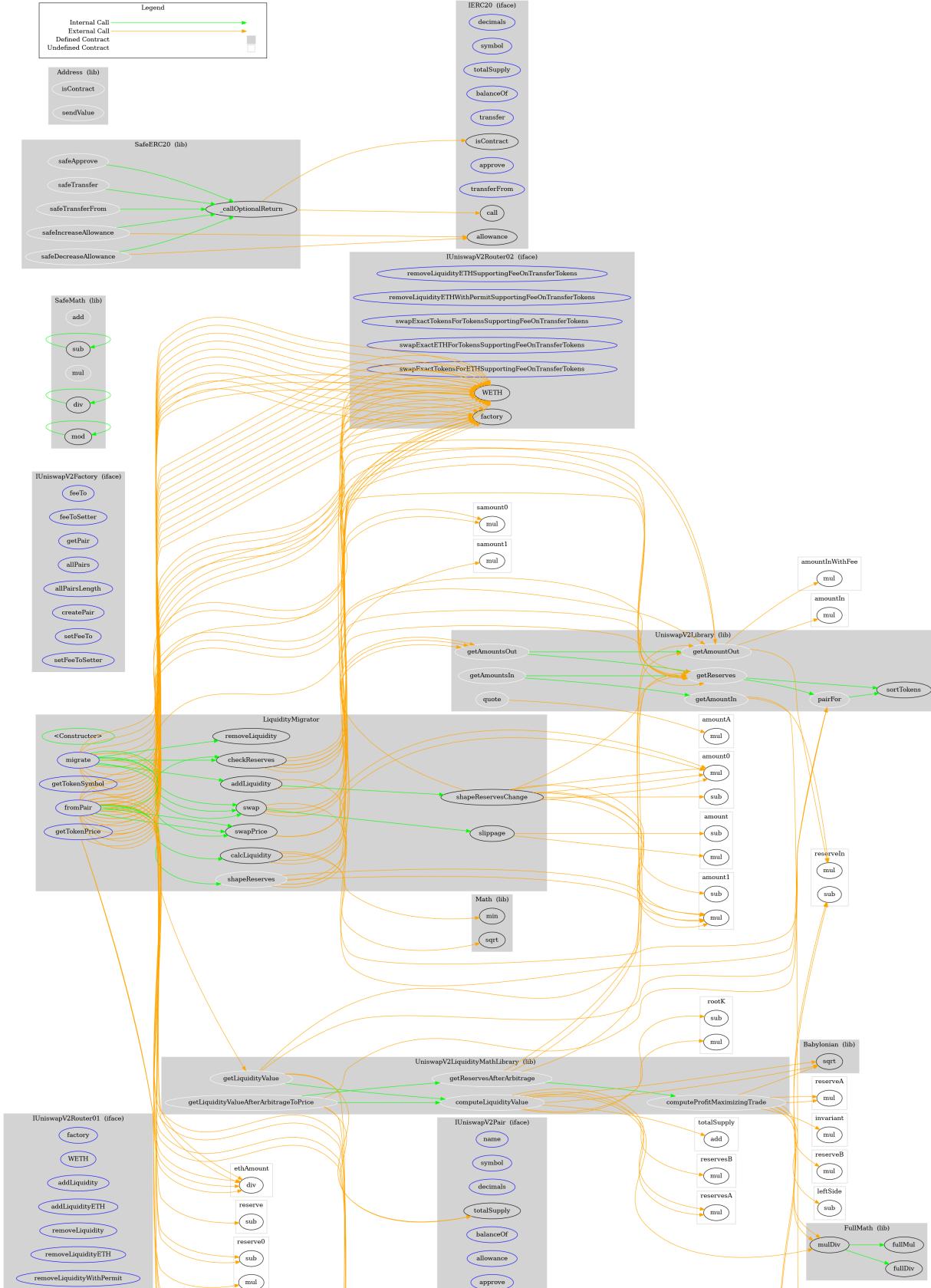
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Vulnerability Category	Notes	Result
Overall Contract Safety		PASS

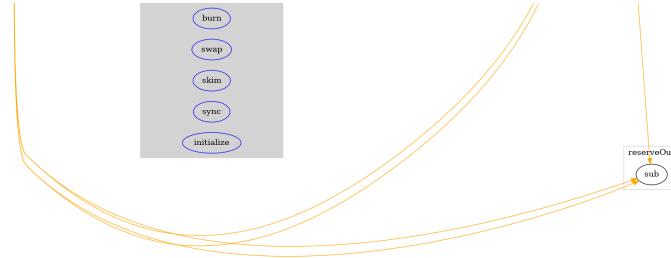
Details: Token

FUNCTION GRAPH

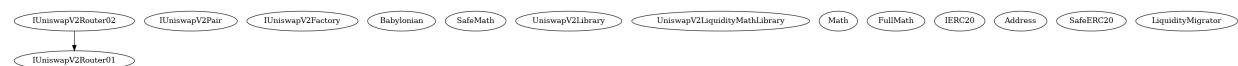
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INHERITANCE CHART



FUNCTIONS OVERVIEW

`(\$)` = payable function
`#` = non-constant function

`Int` = Internal
`Ext` = External
`Pub` = Public

+ [Int] `IUniswapV2Router01`
- [Ext] `factory`

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```
- [Ext] removeLiquidity #
- [Ext] removeLiquidityETH #
- [Ext] removeLiquidityWithPermit #
- [Ext] removeLiquidityETHWithPermit #
- [Ext] swapExactTokensForTokens #
- [Ext] swapTokensForExactTokens #
- [Ext] swapExactETHForTokens ($)
- [Ext] swapTokensForExactETH #
- [Ext] swapExactTokensForETH #
- [Ext] swapETHForExactTokens ($)
- [Ext] quote
- [Ext] getAmountOut
- [Ext] getAmountIn
- [Ext] getAmountsOut
- [Ext] getAmountsIn

+ [Int] IUniswapV2Router02 (IUniswapV2Router01)
- [Ext] removeLiquidityETHSupportingFeeOnTransferTokens
- [Ext] removeLiquidityETHWithPermitSupportingFeeOnTransferTokens
- [Ext] swapExactTokensForTokensSupportingFeeOnTransferTokens
- [Ext] swapExactETHForTokensSupportingFeeOnTransferTokens
- [Ext] swapExactTokensForETHSupportingFeeOnTransferTokens

+ [Int] IUniswapV2Pair
- [Ext] name
- [Ext] symbol
- [Ext] decimals
- [Ext] totalSupply
```

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```
- [Ext] transfer #
- [Ext] transferFrom #
- [Ext] DOMAIN_SEPARATOR
- [Ext] PERMIT_TYPEHASH
- [Ext] nonces
- [Ext] permit #
- [Ext] MINIMUM_LIQUIDITY
- [Ext] factory
- [Ext] token0
- [Ext] token1
- [Ext] getReserves
- [Ext] price0CumulativeLast
- [Ext] price1CumulativeLast
- [Ext] kLast
- [Ext] mint #
- [Ext] burn #
- [Ext] swap #
- [Ext] skim #
- [Ext] sync #
- [Ext] initialize #  
  
+ [Int] IUniswapV2Factory
- [Ext] feeTo
- [Ext] feeToSetter
- [Ext] getPair
- [Ext] allPairs
- [Ext] allPairsLength
- [Ext] createPair #
```

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```
+ [Lib] Babylonian
  - [Int] sqrt

+ [Lib] SafeMath
  - [Int] add
  - [Int] sub
  - [Int] sub
  - [Int] mul
  - [Int] div
  - [Int] div
  - [Int] mod
  - [Int] mod

+ [Lib] UniswapV2Library
  - [Int] sortTokens
  - [Int] pairFor
  - [Int] getReserves
  - [Int] quote
  - [Int] getAmountOut
  - [Int] getAmountIn
  - [Int] getAmountsOut
  - [Int] getAmountsIn

+ [Lib] UniswapV2LiquidityMathLibrary
  - [Int] computeProfitMaximizingTrade
  - [Int] getReservesAfterArbitrage
  - [Int] computeLiquidityValue
  - [Int] getLiquidityValue
```

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```
- [Int] min
- [Int] sqrt

+ [Lib] FullMath
- [Int] fullMul
- [Prv] fullDiv
- [Int] mulDiv

+ [Int] IERC20
- [Ext] decimals
- [Ext] symbol
- [Ext] totalSupply
- [Ext] balanceOf
- [Ext] transfer #
- [Ext] allowance
- [Ext] approve #
- [Ext] transferFrom #

+ [Lib] Address
- [Int] isContract
- [Int] sendValue #

+ [Lib] SafeERC20
- [Int] safeTransfer #
- [Int] safeTransferFrom #
- [Int] safeApprove #
- [Int] safeIncreaseAllowance #
- [Int] safeDecreaseAllowance #
```

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- [Pub] #
- [Ext] migrate #
- [Int] removeLiquidity #
- [Int] addLiquidity #
- [Int] swap #
- [Int] checkReserves
- [Int] checkReserves
- [Int] slippage
- [Int] shapeReservesChange #
- [Int] shapeReserves
- [Ext] fromPair
- [Int] calcLiquidity
- [Int] swapPrice
- [Ext] getTokenPrice
- [Ext] getTokenSymbol

SOURCE CODE

[Click here to download the flattened source code as a .sol file.](#)

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G O H O M E

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