



Full report

AuraSwap Security Assessment



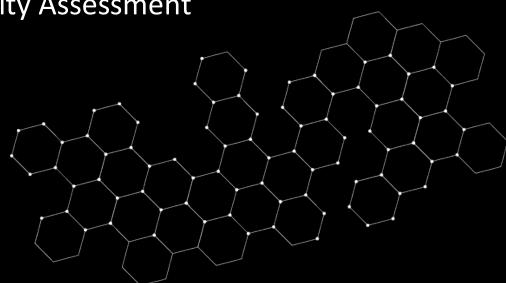




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Report Information

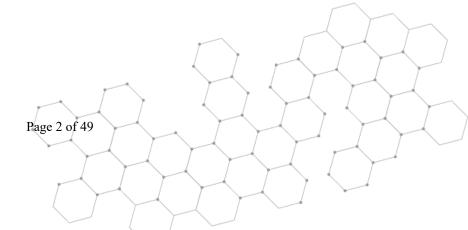
About Report	AuraSwap Security Assessment
Version	v1.1
Client	AuraSwap
Language	Solidity
Confidentiality	Public
Platform	Polygon (Previously Matic Chain)
Contract Address	Router: 0x09Fd8B8ed6E30e583379Dc73b9261dF5E1A28b6F Factory: 0x015DE3ec460869eb5ceAe4224Dc7112ac0a39303 AuraToken: 0x1b7805e2829fd7D194DCc3078a4199b13c77E467 SousChef: 0x266Eb9a845f677B1E24d59a4c0fDC24F625f7757 MasterChef: 0x44Bb1a3E56Cb12b7B1a8E925f09A170e3646346d Timelock: 0x96257018553A4e988d884BE928B9bc7bC85B2649
Audit Method	Whitebox

*Audit Method

Whitebox: Securi Team receives all source code from the client to provide the assessment.
 Blackbox: Securi Team receives only bytecode from the client to provide the assessment.

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Disclaimer

Regarding this security assessment, there are no guarantees about the security of the program instruction received from the client is hereinafter referred to as "**Source code**".

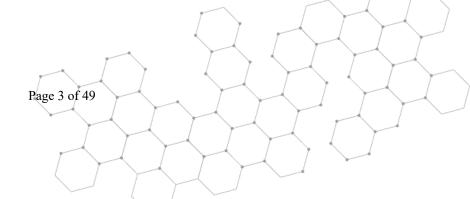
And **SECURI** hereinafter referred to as "**Service Provider**", the **Service Provider** will not be held liable for any legal liability arising from errors in the security assessment. The responsibility will be the responsibility of the **client**, hereinafter referred to as "**Service User**" and the **service user** agrees not to be held liable to the **service provider** in any case. By contract **service provider** to conduct security assessments with integrity with professional ethics, and transparency to deliver security assessments to users The **service provider** has the right to postpone the delivery of the security assessment. If the security assessment is delayed whether caused by any reason and is not responsible for any delayed security assessments. If **the service provider** finds a vulnerability The **service provider** will notify the **service user** via the Preliminary Report, which will be kept confidential for security. The **service provider** disclaims responsibility in the event of any attacks occurring whether before conducting a security assessment. Or happened later All responsibility shall be sole with the **service user**.

Security Assessment Not Financial/Investment Advice Any loss arising from any investment in any project is the responsibility of the investor.

SECURI disclaims any liability incurred. Whether it's Rugpull, Abandonment, Soft Rugpull

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Executive Summary

For this security assessment, Securi received a request from AuraSwap on Tuesday, August 16, 2022.

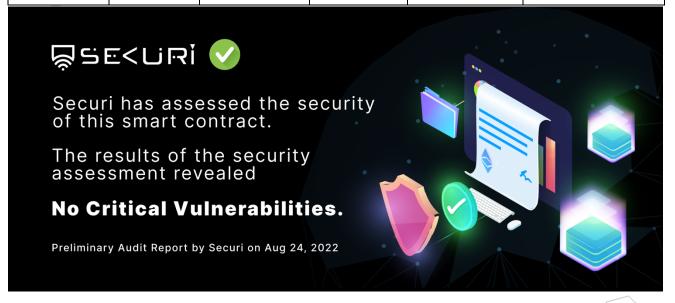
The Securi team has conducted a comprehensive security assessment of the vulnerabilities. This assessment is tested with an expert assessment. Using the following test requirements

- 1. Smart Contract Testing with Expert Analysis By testing the most common and uncommon vulnerabilities.
- 2. Automated program testing It includes a sample vulnerability test and a sample of the potential vulnerabilities being used for the most frequent attacks.
- 3. Visibility, Mutability, Modifier function testing, such as whether a function can be seen in general, or whether a function can be changed and if so, who can change it.
- 4. Function association test It will be displayed through the association graph.
- 5. This safety assessment is cross-checked prior to the delivery of the assessment results.

Audit Result

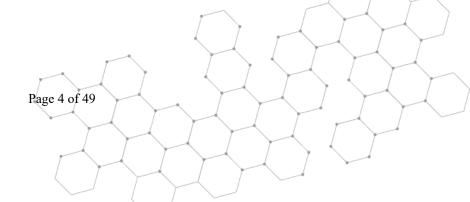
Securi evaluated the smart contract security of the Example project and found:

Critical	High	Medium	Low	Very Low	Informational
0	0	0	4	0	3



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Project Introduction Scope Information:

Project Name	AuraSwap DEX
Website	https://www.auraswap.finance/home
Chain	Polygon (Previously Matic Chain)
Language	Solidity

Audit Information:

Request Date	Tuesday, August 16, 2022
Audit Date	Wednesday, August 24, 2022

Audit Version History:

Version	Date	Description
1.0	Wednesday, August 24, 2022	Preliminary Report
1.1	Thursday, August 25, 2022	Full Report

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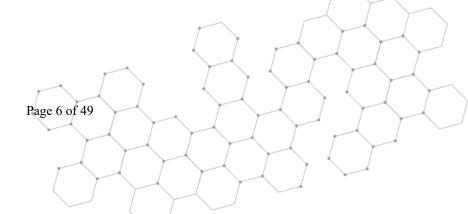


Initial Audit Scope: Contract:

Smart Contract	Router: 0x09Fd8B8ed6E30e583379Dc73b9261dF5E1A28b6F
	Factory: 0x015DE3ec460869eb5ceAe4224Dc7112ac0a39303
	AuraToken: 0x1b7805e2829fd7D194DCc3078a4199b13c77E467
	SousChef: 0x266Eb9a845f677B1E24d59a4c0fDC24F625f7757
	MasterChef: 0x44Bb1a3E56Cb12b7B1a8E925f09A170e3646346d
	Timelock: 0x96257018553A4e988d884BE928B9bc7bC85B2649
Compiler Version	Router: v0.6.12+commit.27d51765
	Factory: v0.6.12+commit.27d51765
	AuraToken: v0.6.12+commit.27d51765
	SousChef: v0.6.12+commit.27d51765
	MasterChef: v0.6.12+commit.27d51765
	Timelock: v0.6.12+commit.27d51765

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Security Assessment Procedure

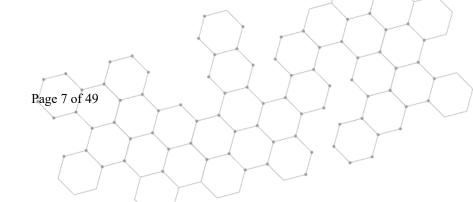
Securi has the following procedures and regulations for conducting security assessments:

- 1. Request Audit Client submits a form request through the Securi channel. After receiving the request, Securi will discuss a security assessment. And drafting a contract and agreeing to sign a contract together with the Client
- **2. Auditing** Securi performs security assessments of smart contracts obtained through automated analysis and expert manual audits.
- **3. Preliminary Report** At this stage, Securi will deliver an initial security assessment. To report on vulnerabilities and errors found under Audit Scope will not publish preliminary reports for safety.
- **4. Reassessment** After Securi has delivered the Preliminary Report to the Client, Securi will track the status of the vulnerability or error, which will be published to the Final Report at a later date with the following statuses:
 - **a.Acknowledge** The client has been informed about errors or vulnerabilities from the security assessment.
 - **b.Resolved**The client has resolved the error or vulnerability. Resolved is probably just a commit, and Securi is unable to verify that the resolved has been implemented or not.
 - **c.Decline** Client has rejected the results of the security assessment on the issue.
- **5. Final Report** Securi providing full security assessment report and public



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Risk Rating

Risk rating using this commonly defined: Risk rating = impact * confidence

1. Impact The severity and potential impact of an attacker attack

2. Confidence Ensuring that attackers expose and use this vulnerability

Both have a total of 3 levels: **High, Medium, Low**. By *Informational* will not be classified as a

Confidence Impact	Low	Medium	High
Low	Very Low	Low	Medium
Medium	Low	Medium	High
High	Medium	High	Critical

Severity is a risk assessment It is calculated from the Impact and Confidence values using the following calculation methods, $Risk\ rating = impact * confidence$ It is categorized into **5 categories based** on the **lowest severity**: Very Low, Low, Medium, High, Critical. For **Informational** will not be counted as **severity**

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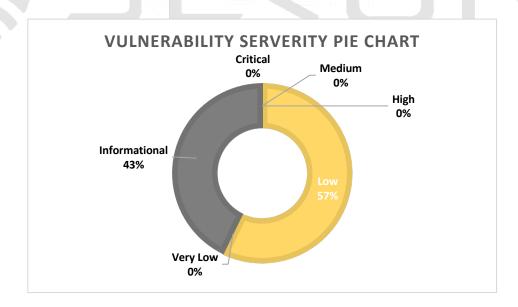
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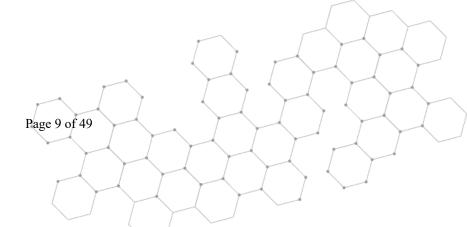
Vulnerability Severity Summary

Vulnerability Severity Level	Total
Critical	0
High	0
Medium	0
Low	4
Very Low	0
Informational (Non severity level)	3



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Vulnerability Findings

ID	Title	Severity	Status
SEC-01	Unused return values	LOW	Acknowledge
SEC-02	Imprecise arithmetic operations order	LOW	Acknowledge
SEC-03	Dangerous usage of `block.timestamp'	LOW	Acknowledge
SEC-04	Missing Zero Address Validation	LOW	Acknowledge
SEC-05	Assembly usage	Informational	Acknowledge
SEC-06	Conformity to Solidity naming conventions	Informational	Acknowledge
SWC-102	Outdated Compiler Version	Informational	Acknowledge

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SEC-01: Unused return values (unused-return)

Туре	Severity	Location	Status
Unused return values (unused-return)	LOW	Line: 1379-1410	Acknowledge

Finding:

MasterChef.add(uint256,IERC20,IRewarder,bool) (MasterChef.sol:1379-1410) ignores return value by _lpToken.balanceOf(address(this)) (MasterChef.sol#1387)

Recommendation:

Ensure that all the return values of the function calls are used.

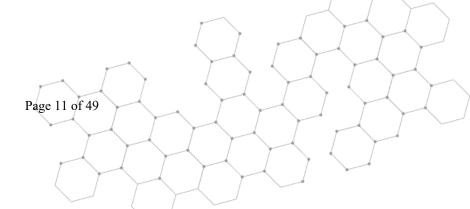
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unused-return

Alleviation:

AuraSwap Team has Acknowledge this issues.

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SEC-02: Imprecise arithmetic operations order

Туре	Severity	Location	Status
Imprecise arithmetic operations order (divide-before-multiply)	LOW	Line: 1448-1475, 1490- 1506	Acknowledge

Description:

- MasterChef.pendingTokens(uint256,address) (MasterChef.sol:1448-1475) performs a multiplication on the result of a division:
 - •auraReward = timeElapsed.mul(auraPerSec).mul(pool.allocPoint).div(totalAllocPoint) (MasterChef.sol#1464)
- •accAuraPerShare = accAuraPerShare.add(auraReward.mul(ACC_AURA_PRECISION).div(lpSupply)) (MasterChef.sol#1465)
- MasterChef.updatePool(uint256) (MasterChef.sol:1490-1506) performs a multiplication on the result of a division:
 - •auraReward = timeElapsed.mul(auraPerSec).mul(pool.allocPoint).div(totalAllocPoint) (MasterChef.sol#1497)
- •pool.accAuraPerShare = pool.accAuraPerShare.add(auraReward.mul(ACC_AURA_PRECISION).div(lpSupply)) (MasterChef.sol#1500)

Recommendation:

Consider ordering multiplication before division.

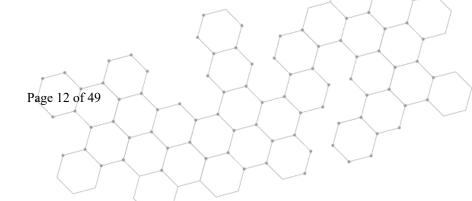
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#divide-before-multiply

Alleviation:

AuraSwap Team has Acknowledge this issues.

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SEC-03: Dangerous usage of 'block.timestamp' (timestamp)

Туре	Severity	Location	Status
Dangerous usage of `block.timestamp' (timestamp)	LOW	Line: Check on description	Acknowledge

Description:

- X AuraToken.delegateBySig(address,uint256,uint256,uint8,bytes32,bytes32) (MasterChef.sol:1093-1134) uses timestamp for comparisons
 - require(bool,string)(now <= expiry,AURA::delegateBySig: signature expired) (MasterChef.sol#1132)
- AuraToken.delegateBySig(address,uint256,uint256,uint8,bytes32,bytes32) (SousChef.sol:868-909) uses timestamp for comparisons
 - require(bool,string)(now <= expiry,AURA::delegateBySig: signature expired) (SousChef.sol#907)
- MasterChef.add(uint256,IERC20,IRewarder,bool) (MasterChef.sol:1379-1410) uses timestamp for comparisons
 block.timestamp > startTimestamp (MasterChef.sol#1396)
- X MasterChef.massUpdatePools() (MasterChef.sol:1478-1486) uses timestamp for comparisons
 - pid < length (MasterChef.sol#1480)
 - pool.allocPoint != 0 (MasterChef.sol#1482)
- X MasterChef.pendingTokens(uint256,address) (MasterChef.sol:1448-1475) uses timestamp for comparisons
 - block.timestamp > pool.lastRewardTimestamp && lpSupply != 0 (MasterChef.sol#1462)
 - address(pool.rewarder) != address(0) (MasterChef.sol#1470)
- X MasterChef.updatePool(uint256) (MasterChef.sol:1490-1506) uses timestamp for comparisons
 - block.timestamp > pool.lastRewardTimestamp (MasterChef.sol#1492)
 - lpSupply > 0 && totalAllocPoint > 0 (MasterChef.sol#1495)
- Timelock.executeTransaction(address,uint256,string,bytes,uint256) (Timelock.sol:266-291) uses timestamp for comparisons
- require(bool,string)(getBlockTimestamp() >= eta,Timelock::executeTransaction: Transaction hasn't surpassed time lock.) (Timelock.sol#271)
- require(bool,string)(getBlockTimestamp() <= eta.add(GRACE_PERIOD),Timelock::executeTransaction: Transaction is stale.) (Timelock.sol#272)
- Timelock.queueTransaction(address,uint256,string,bytes,uint256) (Timelock.sol:246-255) uses timestamp for comparisons
- require(bool,string)(eta >= getBlockTimestamp().add(delay),Timelock::queueTransaction: Estimated execution block must satisfy delay.) (Timelock.sol#248)
- ➤ UniswapV2ERC20.permit(address,address,uint256,uint256,uint8,bytes32,bytes32) (Factory.sol:122-134) uses timestamp for comparisons
 - require(bool,string)(deadline >= block.timestamp,UniswapV2: EXPIRED) (Factory.sol#123)

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➤ UniswapV2Pair._update(uint256,uint256,uint112,uint112) (Factory.sol:285-298) uses timestamp for comparisons

• timeElapsed > 0 && _reserve0 != 0 && _reserve1 != 0 (Factory.sol#289)

Recommendation:

Avoid relying on 'block.timestamp'.

Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#block-timestamp

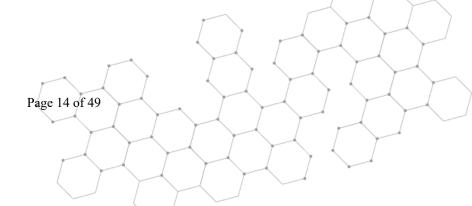
Alleviation:

AuraSwap Team has Acknowledge this issues.



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SEC-04: Missing Zero Address Validation

Туре	Severity	Location	Status
Missing Zero Address Validation (missing-zero-check)	LOW	Line: Check on description	Acknowledge

Description:

- MasterChef.constructor(AuraToken,SousChef,address,uint256,uint256)._devAddr (MasterChef.sol:1355) lacks a zero-check on :
 - devAddr = devAddr (MasterChef.sol#1361)
- X MasterChef.dev(address). devAddr (MasterChef.sol:1594) lacks a zero-check on :
 - devAddr = _devAddr (MasterChef.sol#1596)
- X Timelock.constructor(address,uint256).admin_ (Timelock.sol:204) lacks a zero-check on :
 - admin = admin_ (Timelock.sol#208)
- Timelock.executeTransaction(address,uint256,string,bytes,uint256).target (Timelock.sol:266) lacks a zero-check on:
 - (success,returnData) = target.call.value(value)(callData) (Timelock.sol#285)
- Timelock.setPendingAdmin(address).pendingAdmin_ (Timelock.sol:233) lacks a zero-check on :
 - pendingAdmin = pendingAdmin (Timelock.sol#241)
- X UniswapV2Factory.constructor(address)._feeToSetter (Factory.sol:429) lacks a zero-check on :
 - feeToSetter = _feeToSetter (Factory.sol#430)
- UniswapV2Factory.setFeeTo(address)._feeTo (Factory.sol:458) lacks a zero-check on :
 - feeTo = _feeTo (Factory.sol#460)
- X UniswapV2Factory.setFeeToSetter(address)._feeToSetter (Factory.sol:463) lacks a zero-check on :
 - feeToSetter = _feeToSetter (Factory.sol#465)
- X UniswapV2Pair.initialize(address,address). token0 (Factory.sol:278) lacks a zero-check on:
 - token0 = token0 (Factory.sol#280)
- UniswapV2Pair.initialize(address,address). token1 (Factory.sol:278) lacks a zero-check on:
 - token1 = token1 (Factory.sol#281)
- X UniswapV2Router02.constructor(address,address)._WETH (Router.sol:405) lacks a zero-check on :
 - WETH = WETH (Router.sol#407)
- X UniswapV2Router02.constructor(address,address)._factory (Router.sol:405) lacks a zero-check on :
 - factory = factory (Router.sol#406)

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Recommendation:

Check that the address is not zero.

Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#missing-zero-address-validation

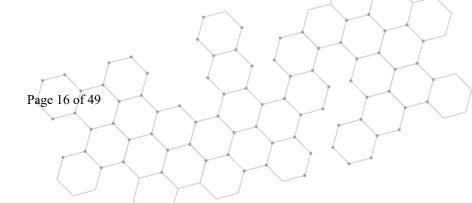
Alleviation:

AuraSwap Team has Acknowledge this issues.



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SEC-05: Assembly usage (assembly)

Туре	Severity	Location	Status
Assembly usage (assembly)	Informational	Line: Check on description	Acknowledge

Description:

- X AuraToken.getChainId() (MasterChef.sol:1252-1256) uses assembly
 - INLINE ASM (MasterChef.sol#1254)
- X AuraToken.getChainId() (SousChef.sol:1027-1031) uses assembly
 - INLINE ASM (SousChef.sol#1029)

Recommendation:

Do not use 'evm' assembly.

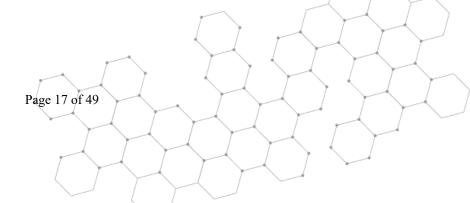
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#assembly-usage

Alleviation:

AuraSwap Team has Acknowledge this issues.

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SEC-06: Conformity to Solidity naming conventions

Туре	Severity	Location	Status
Conformity to Solidity naming conventions (naming-convention)	Informational	Line: Check on description	Acknowledge

Description:

- X Constant AuraToken.maxSupply (SousChef.sol:793) is not in UPPER_CASE_WITH_UNDERSCORES
- X Parameter AuraToken.mint(address,uint256). amount (SousChef.sol:796) is not in mixedCase
- X Parameter SousChef.safeAuraTransfer(address,uint256)._amount (SousChef.sol:1048) is not in mixedCase
- X Variable AuraToken._delegates (SousChef.sol:810) is not in mixedCase
- X Variable Timelock.admin_initialized (Timelock.sol:199) is not in mixedCase

Recommendation:

Follow the Solidity [naming convention](https://solidity.readthedocs.io/en/v0.4.25/style-guide.html#naming-conventions).

Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions

Alleviation:

AuraSwap Team has Acknowledge this issues.

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SWC Findings

ID	Title	Scanning	Result
SWC-100	Function Default Visibility	Complete	No risk
SWC-101	Integer Overflow and Underflow	Complete	No risk
SWC-102	Outdated Compiler Version	Complete	Informational
SWC-103	Floating Pragma	Complete	No risk
SWC-104	Unchecked Call Return Value	Complete	No risk
SWC-105	Unprotected Ether Withdrawal	Complete	No risk
SWC-106	Unprotected SELFDESTRUCT Instruction	Complete	No risk
SWC-107	Reentrancy	Complete	No risk
SWC-108	State Variable Default Visibility	Complete	No risk
SWC-109	Uninitialized Storage Pointer	Complete	No risk
SWC-110	Assert Violation	Complete	No risk
SWC-111	Use of Deprecated Solidity Functions	Complete	No risk
SWC-112	Delegatecall to Untrusted Callee	Complete	No risk
SWC-113	DoS with Failed Call	Complete	No risk
SWC-114	Transaction Order Dependence	Complete	No risk

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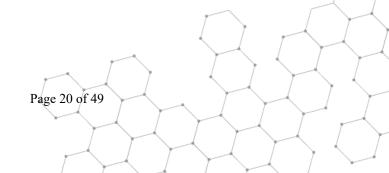


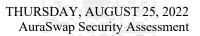


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SWC-115	Authorization through tx.origin	Complete	No risk
SWC-116	Block values as a proxy for time	Complete	Informational
SWC-117	Signature Malleability	Complete	No risk
SWC-118	Incorrect Constructor Name	Complete	No risk
SWC-119	Shadowing State Variables	Complete	No risk
SWC-120	Weak Sources of Randomness from Chain Attributes	Complete	No risk
SWC-121	Missing Protection against Signature Replay Attacks	Complete	No risk
SWC-122	Lack of Proper Signature Verification	Complete	No risk
SWC-123	Requirement Violation	Complete	No risk
SWC-124	Write to Arbitrary Storage Location	Complete	No risk
SWC-125	Incorrect Inheritance Order	Complete	No risk
SWC-126	Insufficient Gas Griefing	Complete	No risk
SWC-127	Arbitrary Jump with Function Type Variable	Complete	No risk
SWC-128	DoS With Block Gas Limit	Complete	No risk
SWC-129	Typographical Error	Complete	No risk
SWC-130	Right-To-Left-Override control character (U+202E)	Complete	No risk

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SWC-131	Presence of unused variables	Complete	No risk
SWC-132	Unexpected Ether balance	Complete	No risk
SWC-133	Hash Collisions With Multiple Variable Length Arguments	Complete	No risk
SWC-134	Message call with hardcoded gas amount	Complete	No risk
SWC-135	Code With No Effects	Complete	No risk
SWC-136	Unencrypted Private Data On-Chain	Complete	No risk



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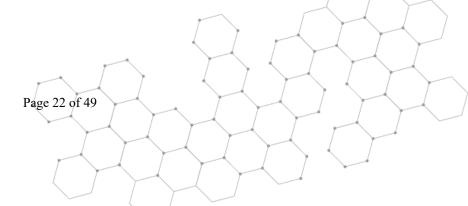
Visibility, Mutability, Modifier function testing

Router: 0x09Fd8B8ed6E30e583379Dc73b9261dF5E1A28b6F

```
Contracts Description Table
  Contract | Type
                                     Bases
             **Function Name** | **Visibility** | **Mutability**
**Modifiers**
\Pi\Pi\Pi\Pi
 **IUniswapV2Pair** | Interface | |||
 L | name | External | | NO! |
 L | symbol | External | | NO! |
 L | totalSupply | External | | | NO!
 L | balanceOf | External | |
                             |NO |
 L | allowance | External | |
                             |N0 |
 L | transfer | External | | 🛑 | NO! |
 💄 | transferFrom | External 📒 | 🛑 |NO 📙 |
 L | DOMAIN_SEPARATOR | External | | | NO ! |
 |NO | |
 L | nonces | External ! |
                          |N0 ! |
 L | permit | External | | 🛑 | NO! |
 L | MINIMUM_LIQUIDITY | External ! |
 L | factory | External | |
                           |N0 |
 L | token0 | External | |
                          |NO |
 L | token1 | External | |
                          |NO |
 L | getReserves | External | | | NO! |
 L | price0CumulativeLast | External
                                       |N0 | |
 L | price1CumulativeLast | External ! |
                                       INO I
 L | kLast | External | |
                         |N0 
 L | mint | External
                          |N0 |
 L | burn | External
                          IN0
     swap | External
                          INO I
     skim | External
```

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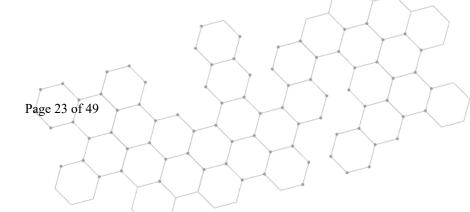




```
| sync | External | |
                           |N0 | |
L | initialize | External | | 🛑
                               |N0 |
**SafeMathUniswap** | Library | |||
└ | add | Internal 🗎 |
L | sub | Internal ← |
 | mul | Internal 🗎 |
**UniswapV2Library** | Library | |||
L | sortTokens | Internal 	☐ |
└ | pairFor | Internal 🔒 |
 | getReserves | Internal 🔓 |
└ | quote | Internal 🔒 |  | |
 | getAmountOut | Internal 🗎 |
└ | getAmountIn | Internal 🗎 |
└ | getAmountsOut | Internal 🗎 | | |
**TransferHelper** | Library | |||
📙 | safeApprove | Internal 🗎 | 🥌
 | safeTransfer | Internal 🔒 | 🛑
  | safeTransferFrom | Internal 🔒 | 🛑
 | safeTransferETH | Internal 🔒 | 🥮 | |
**IUniswapV2Router01** | Interface | |||
 | factory | External | |
                            |N0 !
 | WETH | External ! |
                         |N0 |
 | addLiquidity | External | |
 | addLiquidityETH | External | | 💌 |NO!
 | removeLiquidity | External 📘 | 🛑
L | removeLiquidityETH | External 📘 | 🥌
  | removeLiquidityWithPermit | External |
 | removeLiquidityETHWithPermit | External |
  | swapExactTokensForTokens | External
 | swapTokensForExactTokens | External
  | swapExactETHForTokens | External
                                           |N0
   swapTokensForExactETH | External
    swapExactTokensForETH | External
```

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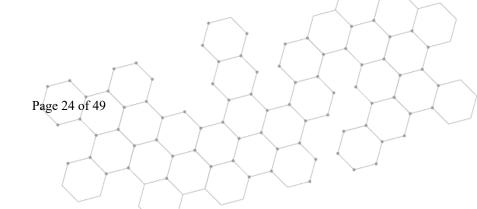




```
| swapETHForExactTokens | External | | 💌 |NO ! |
 L | quote | External ! |
                      |N0 |
  | getAmountOut | External ! |
                            |NO |
  | getAmountIn | External | |
  | getAmountsOut | External | |
                             |N0 |
  | getAmountsIn | External | |
                            INO !
 **IUniswapV2Router02** | Interface | IUniswapV2Router01 |||
  |NO | |
  L | swapExactETHForTokensSupportingFeeOnTransferTokens | External | | 🚳 | NO! |
 L | swapExactTokensForETHSupportingFeeOnTransferTokens | External |
 **IUniswapV2Factory** | Interface | |||
 L | feeTo | External | | | NO! |
 L | feeToSetter | External ! |
                           |N0 |
  | getPair | External | | | NO! |
 L | allPairs | External | |
                        | allPairsLength | External | | NO! |
 L | createPair | External 📘 | 🥮
                           | setFeeTo | External | | 🛑
                         |N0 |
 L | setFeeToSetter | External | | 🛑 | NO 📗 |
**IERC20Uniswap** | Interface | |||
 L | name | External ! |
 L | symbol | External | |
                       |N0
 L | decimals | External | |
  | totalSupply | External ! |
                           |N0 |
 L | balanceOf | External | |
                          |N0 |
 |N0 |
 👢 | approve | External 📒 | 🥌
                         |NO | |
 L | transfer | External 📘 | 🥌
                          |N0 | |
 💄 | transferFrom | External 👢 | 🥮 |NO 👢 |
 **IWETH** | Interface |
    deposit | External | 🙉 |NO
```

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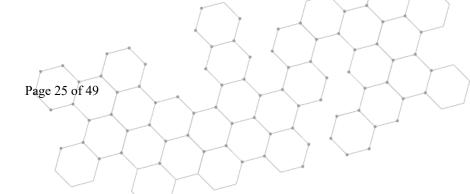




```
| transfer | External
                               INO !
   | withdraw |
               External !
                               INO!
 **UniswapV2Router02** | Implementation | IUniswapV2Router02 |||
  L | <Constructor> | Public | | 🛑 | NO! |
   | <Receive Ether> | External | | 🝱 |NO! |
   | _addLiquidity | Internal 🛍 | 🥌
   | addLiquidity | External | | 🛑 | ensure |
   | addLiquidityETH | External | | 💹 | ensure |
   | removeLiquidity | Public | | 🛑
                                   | ensure |
  L | removeLiquidityETH | Public | | 🛑
   | removeLiquidityETHWithPermit | External | | |
   | removeLiquidityETHSupportingFeeOnTransferTokens | Public ! | 🛑 | ensure |
   | removeLiquidityETHWithPermitSupportingFeeOnTransferTokens | External 👢 | 🛑
INO !
   | swap | Internal 🗎 | 🥌
   | swapExactTokensForTokens | External |
  L | swapTokensForExactTokens | External
                                              | ensure |
  | | swapExactETHForTokens | External
   | swapTokensForExactETH | External
  L | swapExactTokensForETH | External
                                           | ensure |
   | swapETHForExactTokens | External | | 🚳
                                           | ensure |
  📙 | _swapSupportingFeeOnTransferTokens | Internal 🔒 | 🥌
  | | swapExactTokensForTokensSupportingFeeOnTransferTokens | External | | |
ensure 1
  👢 | swapExactETHForTokensSupportingFeeOnTransferTokens | External 👢 | 💹 | ensure |
   | swapExactTokensForETHSupportingFeeOnTransferTokens | External 🕴 | 🥮 | ensure |
  L | quote | Public | | NO! |
   | getAmountOut | Public | |
  L | getAmountIn | Public | |
                               |NO | |
  |N0 ! |
  L | getAmountsIn | Public ! |
                                |NO | |
Legend
  Symbol
            Meaning
```

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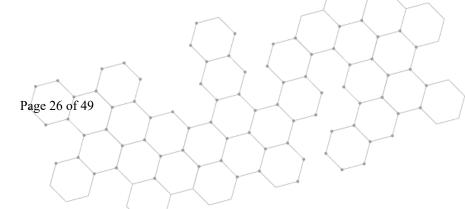


| Function can modify state | | Function is payable |



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Factory: 0x015DE3ec460869eb5ceAe4224Dc7112ac0a39303

```
Contracts Description Table
 Contract | Type |
                           Bases
        | **Function Name** | **Visibility** | **Mutability** |
**Modifiers**
**IUniswapV2Factory** | Interface | |||
 L | feeTo | External | | | NO! |
 L | feeToSetter | External | | NO! |
 L | getPair | External | | NO | |
 L | allPairsLength | External | | NO! |
 | **SafeMathUniswap** | Library | |||
 L | add | Internal ⋒ |  | |
 L | sub | Internal 🗎 |
 └ | mul | Internal 🔒 |
**UniswapV2ERC20** | Implementation | |||
 L | _mint | Internal 🛍 | 🥮 | |
 └ | _burn | Internal A | ● | |
 L | _approve | Private 🔐 | 🥮 | |
 L | _transfer | Private 🛍 | 🛑
 📙 | transferFrom | External 📒 | 🥮 |NO 📙 |
 **Math** | Library | |
```

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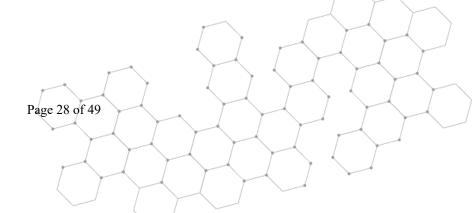




```
| min | Internal 🛍 |
L | sqrt | Internal A | | |
**U0112x112** | Library | |||
└ | encode | Internal 🗎 | | |
└ | uqdiv | Internal 🔒 |  | |
**IERC20Uniswap** | Interface | |||
L | name | External ! |
                        |N0 |
L | symbol | External | |
                          |NO | |
L | decimals | External | | NO! |
|N0 |
L | balanceOf | External ! |
                             |NO | |
L | allowance | External ! |
                             |NO |
👢 | approve | External 📒 | 🥌
                            |NO | |
L | transfer | External 📘 | 🛑
                            **IUniswapV2Callee** | Interface | |||
👢 | uniswapV2Call | External 🕴 | 🥮 |NO 📙 |
**UniswapV2Pair** | Implementation | UniswapV2ERC20 |||
L | getReserves | Public ! |
                            |NO | |
📙 | _safeTransfer | Private 🛍 | 🥌
L | <Constructor> | Public ! | •
                               |N0 |
📙 | initialize | External 📘 | 🥮 |NO 📗 |
L | _update | Private 🔐 | 🥌
L | _mintFee | Private ≅ |
L | mint | External 📘 | 🥌
L | burn | External
                           lock
L | swap | External 🕴
                           lock
 | skim | External 🏅
                           lock
L | sync | External
                          | lock |
**UniswapV2Factory** | Implementation | IUniswapV2Factory |||
L | <Constructor> | Public | | 🛑
                               |N0 |
 | allPairsLength | External ! |
   pairCodeHash | External
```

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```
| L | createPair | External ! | NO! |
| L | setFeeTo | External ! | NO! |
| L | setFeeToSetter | External ! | NO! |

Legend

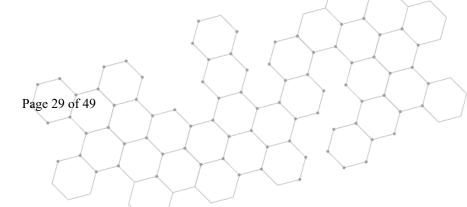
| Symbol | Meaning |
|:-----|
| Function can modify state |
| Improve | Function is payable |
```



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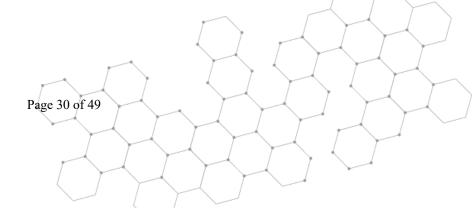


AuraToken: 0x1b7805e2829fd7D194DCc3078a4199b13c77E467

```
Contracts Description Table
  Contract | Type |
                                      Bases
            | **Function Name** | **Visibility** | **Mutability** |
**Modifiers**
| **Context** | Implementation | |||
 └ | _msgSender | Internal 🛍 | | |
  L | _msgData | Internal ← | | |
| **IERC20** | Interface | |||
 L | totalSupply | External ! | | NO! |
 L | balanceOf | External | | NO! |
 L | allowance | External | |
                              |NO | |
  L | approve | External ! | 🛑
                              |NO | |
  L | transferFrom | External | | 🛑 | NO! |
1111111
 **SafeMath** | Library | |||
 └ | add | Internal 🛍 |
 └ | sub | Internal 🔒 |
 └ | sub | Internal 🗎 |
  └ | mul | Internal 🔒 |
 L | div | Internal 🔒 |
 └ | div | Internal 🔒 |
 └ | mod | Internal 🔒 |
  └ | mod | Internal 🔒 |
\square
 **Address** | Library | |||
 └ | isContract | Internal 🔓 |
 👢 | sendValue | Internal 🗎 | 🥌
  L | functionCall | Internal ☐ |
     functionCall | Internal 🗎
```

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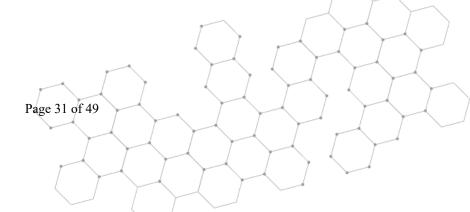




```
| functionCallWithValue | Internal 🔒 | 🥌
   | functionCallWithValue | Internal 🔒 |
   | functionCallWithValue | Private 😭 | 🥌
 **ERC20** | Implementation | Context, IERC20 |||
  L | <Constructor> | Public ! | •
   | name | Public | | NO! |
   | symbol | Public |
                           |N0 |
   | decimals | Public | |
                             |NO | |
   | totalSupply | Public | |
                                |NO |
  L | balanceOf | Public | |
                              IN0
   | transfer | Public ! | 🛑
                               |N0
  L | allowance | Public | |
                              IN0
   | approve | Public | |
                              |N0 !
  💄 | transferFrom | Public 👢 | 🥌
                                   |NO | |
  |N0
  L | decreaseAllowance | Public |
                                        |N0 | |
  L | _transfer | Internal 🛍 | 🥌
   | mint | Internal 🗎 |
  L | _burn | Internal 🖴 | 🥌
   | _approve | Internal 🔒 | 🛑
   | _setupDecimals | Internal 🔒 | 🥌
  📙 | _beforeTokenTransfer | Internal 🛍 | 🥌
 **Ownable** | Implementation | Context |||
  └ | <Constructor> | Internal 🗎 | 🛑
  L | owner | Public ! |
                          |NO | |
   | renounceOwnership | Public |
                                        | onlyOwner |
  L | transferOwnership | Public | | 🛑
\Pi\Pi\Pi\Pi
 **AuraToken** | Implementation | ERC20, Ownable |||
  L | mint | Public | | 🛑
                          | onlyOwner |
  L | delegates | External | |
                                |N0 |
   | delegate | External 📘 | 🥌
                                 |N0 |
   | delegateBySig | External
                                      |NO | |
   | getCurrentVotes | External
                                      |NO |
     getPriorVotes | External
                                    |N0 | |
      delegate | Internal 🔒
```

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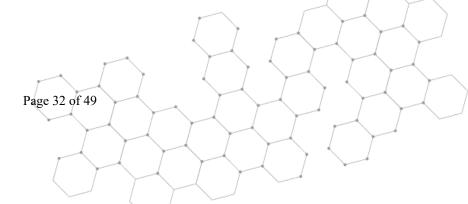






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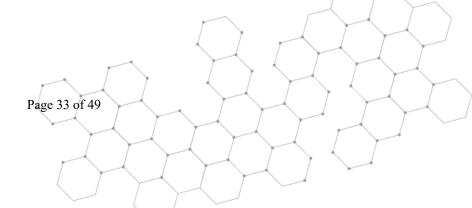


SousChef: 0x266Eb9a845f677B1E24d59a4c0fDC24F625f7757

```
Contracts Description Table
  Contract | Type |
                                    Bases
           | **Function Name** | **Visibility** | **Mutability** |
**Modifiers** |
| **Context** | Implementation | |||
 └ | _msgSender | Internal 🛍 | | |
 | **Ownable** | Implementation | Context |||
 └ | <Constructor> | Internal 🔒 | 🥌 | |
 L | owner | Public | | NO | |
 L | renounceOwnership | Public | | 🛑 | onlyOwner |
 | **IERC20** | Interface | |||
 L | totalSupply | External | | | NO! |
 L | balanceOf | External | | NO | |
 L | transfer | External | | 🛑
                            |NO ! |
 L | allowance | External | | NO! |
 L | approve | External | | 🛑 | NO! |
 L | transferFrom | External | | 🛑 |NO! |
 **SafeMath** | Library | |||
 └ | add | Internal 🛍 |
 └ | sub | Internal 🔒 |
 L | sub | Internal ⋒ |
 └ | mul | Internal 🔒 |
 L | div | Internal 🗎 |
   | div | Internal 🗎 |
   | mod | Internal 🔒
    mod | Internal 🗎
```

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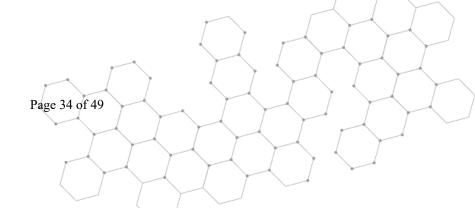




```
**Address** | Library | |||
   | isContract | Internal 🛍 |
  L | sendValue | Internal 🗎 | 🥌
   | functionCall | Internal 🛍 |
  📙 | functionCall | Internal 🛍 | 🥌
   | functionCallWithValue | Internal 🗎
  └ | functionCallWithValue | Internal 🔴
  └ | functionCallWithValue | Private 🔐 |
 **ERC20** | Implementation | Context, IERC20 |||
   | <Constructor> | Public | | 🛑
   | name | Public | |
                          |NO | |
   | symbol | Public | |
                            |N0 !
   | decimals | Public | |
                              |N0 |
   | totalSupply | Public |
                                 |NO |
  INO
  L | transfer | Public 📘 | 🥌
                               |N0
  L | allowance | Public | |
                               |N0
  L | approve | Public 📒 | 🥌
                              |N0
   | transferFrom | Public |
  L | increaseAllowance | Public !
   | decreaseAllowance | Public !
   | _transfer | Internal 🗎 |
   | _mint | Internal 🛍 | 🥌
   | _burn | Internal 🛍 |
  L | _approve | Internal 🔒 | 🥌
   | setupDecimals | Internal 🗎 | 🥌
  L | beforeTokenTransfer | Internal 🗎 | 🥌
\Pi\Pi\Pi\Pi
 **AuraToken** | Implementation | ERC20, Ownable |||
                          | onlyOwner |
   | mint | Public ! | 🛑
  L | delegates | External | |
                                |N0 |
   | delegate | External 📒 | 🥌
                                 |N0
   | delegateBySig | External |
   | getCurrentVotes | External
                                      |N0 |
     getPriorVotes | External
                                     |N0 | |
      delegate | Internal 🔒
```

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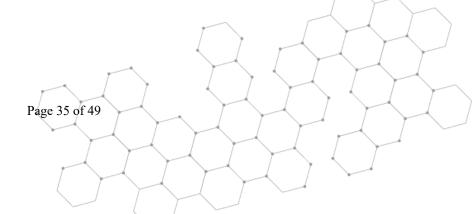




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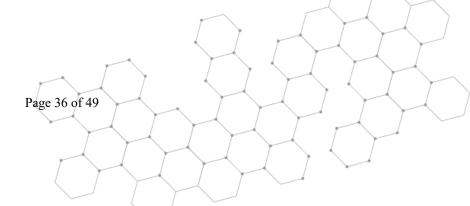


MasterChef: 0x44Bb1a3E56Cb12b7B1a8E925f09A170e3646346d

```
Contracts Description Table
  Contract | Type |
                                     Bases
           | **Function Name** | **Visibility** | **Mutability** |
**Modifiers** |
**IERC20** | Interface | |||
 L | balanceOf | External | |
                             |N0 |
  📙 | transfer | External 📒 | 🧓
                             |NO |
 L | allowance | External ! |
                             |NO |
  L | approve | External ! | 🛑
                            [NO |
  L | transferFrom | External | | 🛑 | NO! |
**SafeMath** | Library |
 L | add | Internal 🔒 |
 📙 | sub | Internal 🖴 |
  L | sub | Internal 🗎 |
  L | mul | Internal 🖴 |
  └ | div | Internal 🔒 |
 └ | div | Internal 🗎 |
 └ | mod | Internal 🗎 |
  L | mod | Internal ← |
 **Address** | Library | |||
 └ | sendValue | Internal 🔒 | 🥌
 👢 | functionCall | Internal 🗎 | 🥌
 👢 | functionCall | Internal 🛍 | 🥌
  └ | functionCallWithValue | Internal 	☐ |
  L | functionCallWithValue | Internal ← |
  L | _functionCallWithValue | Private 🔐 | 🥌
```

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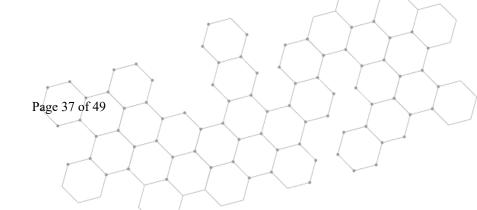




```
**SafeERC20** | Library | |||
 📙 | safeTransfer | Internal 🔒 | 🥮 | |
 L | safeTransferFrom | Internal 🗎 | 🛑
 👢 | safeApprove | Internal 🖴 | 🥌 | |
 📙 | safeDecreaseAllowance | Internal 🔒 | 🥌
 L | _callOptionalReturn | Private 🔐 | 🥌
\Pi\Pi\Pi\Pi
 **Context** | Implementation | |||
 ТШШ
 **Ownable** | Implementation | Context |||
 L | <Constructor> | Internal ← | ● | |
 L | owner | Public ! |
                      |NO | |
 L | renounceOwnership | Public | | 🛑
                                 | onlyOwner |
 **ReentrancyGuard** | Implementation | |||
 └ | <Constructor> | Internal 🗎 | 🥊 | |
 **BoringERC20** | Library | |||
 📙 | safeSymbol | Internal 🖴 | | |
 L | safeName | Internal ⋒ |  | |
 └ | safeDecimals | Internal 🔒 | | |
 └ | safeTransfer | Internal 🗎 | 🥮 | |
 └ | safeTransferFrom | Internal 🗎 | 🛑
\perp \parallel \parallel \parallel \parallel \parallel
 **ERC20** | Implementation | Context, IERC20 |||
 L | name | Public | | NO! |
 L | symbol | Public | |
                       |N0 |
   | decimals | Public ! |
                         |NO ! |
 L | totalSupply | Public ! |
                           |NO | | |
   | balanceOf | Public | |
                          |NO | |
   | transfer | Public 📘 | 🥌
                          |N0 |
    allowance | Public !
```

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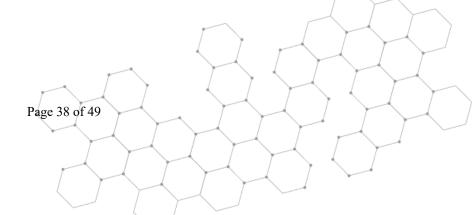




```
| approve | Public ! | 🛑
                             |NO |
  L | transferFrom | Public | | 🛑
   | increaseAllowance | Public !
                                       |N0 |
  L | decreaseAllowance | Public
   | _transfer | Internal 🔒 | 🥌
   | _mint | Internal 🔒 | 🥌
   | _burn | Internal 🔒 | 🥌
   | _approve | Internal 🖴 | 🤛 | |
  L | _setupDecimals | Internal 🗎 | 🥌
  L | beforeTokenTransfer | Internal 🔒 | 🥏
\Pi\Pi\Pi\Pi
 **AuraToken** | Implementation | ERC20, Ownable |||
 L | mint | Public | | 🛑 | onlyOwner |
  L | delegates | External ! |
  L | delegate | External ! |
                                |NO | |
  L | delegateBySig | External 🕴 | 🥌
                                     |N0 |
  L | getCurrentVotes | External | |
                                     |NO | |
  L | getPriorVotes | External ! |
                                   |N0 |
  └ | _delegate | Internal 🛍 | 🥮 | |
 L | _moveDelegates | Internal ← | ← | |
   | _writeCheckpoint | Internal 🛍 | 🛑 | |
  └ | safe32 | Internal 🗎 | | |
  └ | getChainId | Internal 🗎 | | |
 **SousChef** | Implementation | Ownable |||
  L | <Constructor> | Public | | 🛑 | NO! |
 👢 | safeAuraTransfer | Public 👢 | 🤴 | onlyOwner |
111111
 **IRewarder** | Interface | |||
 👢 | onAuraReward | External 📘 | 🥮
  L | pendingTokens | External | | NO! |
  L | rewardToken | External | |
                                 |N0 |
 **MasterChef** | Implementation | Ownable, ReentrancyGuard |||
  L | <Constructor> | Public | | 🛑 | NO! |
  | add | External 📒 | 🛑
                           | onlyOwner |
```

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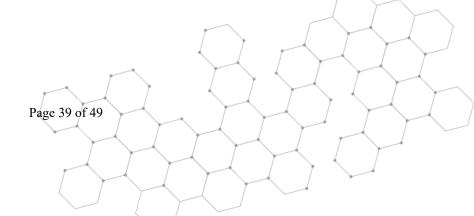


```
| pendingTokens | External | |
                    |NO! |
L | massUpdatePools | Public ! | 🛑
                     |N0 |
 | updatePool | Public 「 | 🛑
                  |NO |
└ | withdraw | External ! | ● | nonReentrant |
| safeAuraTransfer | Internal 🗎 | 🥮 | |
Legend
       Meaning
 Symbol
      Function can modify state |
      Function is payable |
```

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Timelock: 0x96257018553A4e988d884BE928B9bc7bC85B2649

```
Contracts Description Table
  Contract | Type |
                                  Bases
          | **Function Name** | **Visibility** | **Mutability** |
**Modifiers**
**SafeMath** | Library | |||
 └ | add | Internal 🗎 |
 L | sub | Internal 🗎 |
 L | sub | Internal 🛍 |
 └ | mul | Internal 🖴 |
 └ | div | Internal 🔒 |
 L | div | Internal 🗎 |
 └ | mod | Internal 🔒 |
 └ | mod | Internal 🔒 |
| **Timelock** | Implementation | |||
 L | <Receive Ether> | External | | 🚳 | NO | |
 L | setDelay | Public | | 🛑 |NO! |
 L | setPendingAdmin | Public | | 🛑 | NO! |
 L | queueTransaction | Public | | 🛑 | NO! |
 L | cancelTransaction | Public | | 🛑 | NO! |
 L | getBlockTimestamp | Internal ☐ | | |
Legend
  Symbol | Meaning |
        | Function can modify state |
         Function is payable |
```

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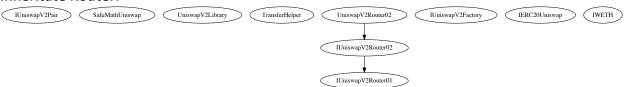
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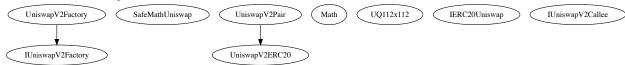


Inheritate Function Relation Graph

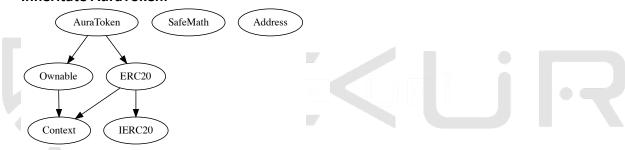
Inheritate Router:



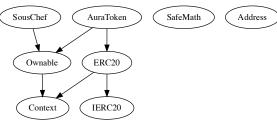
Inheritate Factory:



Inheritate AuraToken:



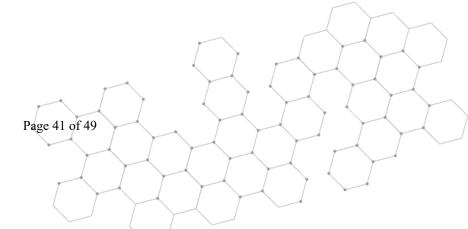
Inheritate SousChef:



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Inheritate MasterChef:



Inheritate Timelock:

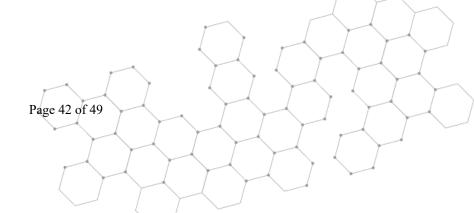




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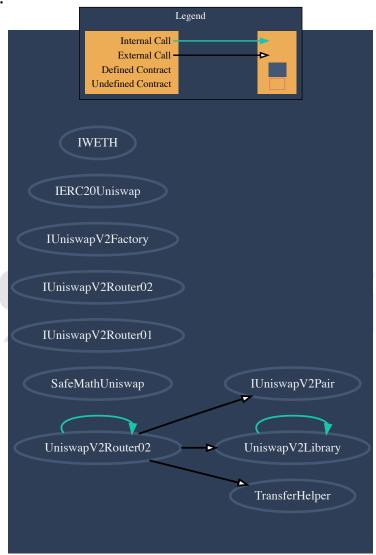
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Contract Interaction Graph

Inheritate Router:





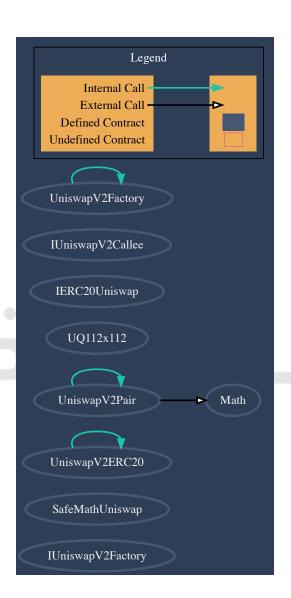
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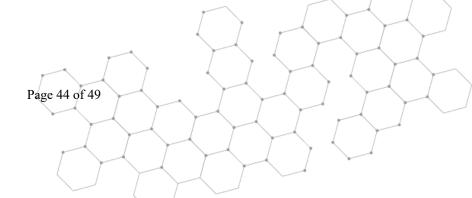
Inheritate Factory:

FULL REPORT



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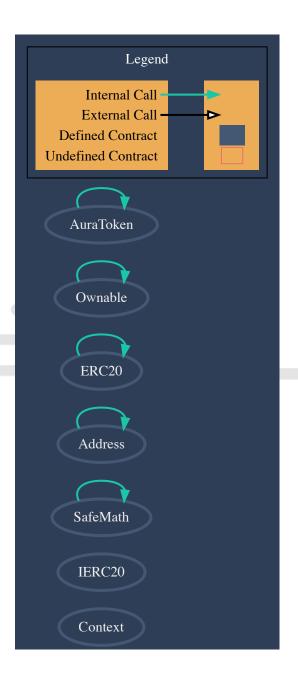
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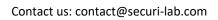




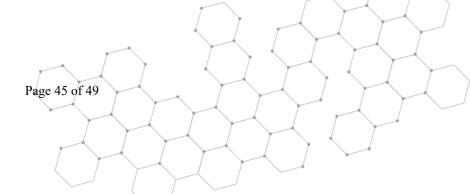
Inheritate AuraToken:

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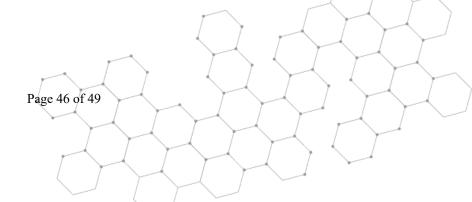
Inheritate SousChef:

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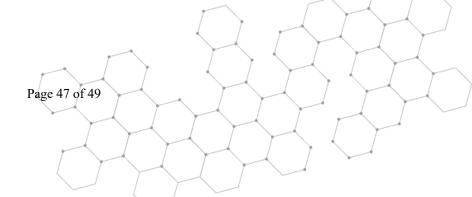


Inheritate MasterChef:



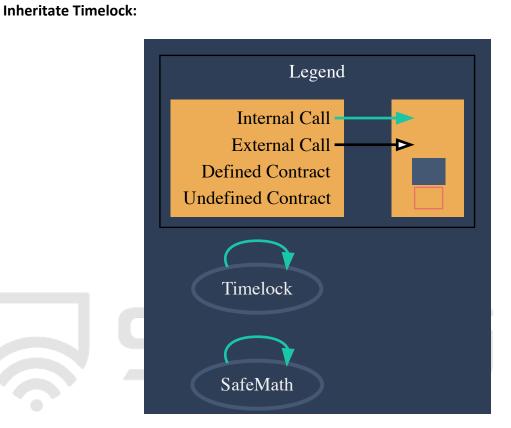
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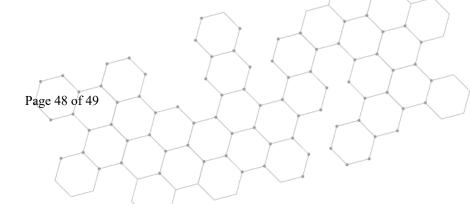






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About Securi

Securi is a group of cyber security experts providing cyber security consulting, smart contract security audits, and KYC services covering reliable methods of identification.



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