APE AUDITS

FungieDAO(Child Contract)

Smart Contract Security Audit

Date 18/January/2022

Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as at 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 disclaimer below – please make sure to read it in full.

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The analysis of the security is purely based on the smart contracts alone. No applications or operations were reviewed for security. No product code has been reviewed.

Purpose

This document details ApeAudits' findings and recommended solutions. Our audit was performed in the weeks leading up to January 18, 2022. The contract we audited has yet to be deployed.

Findings

NO.	Audit Items	Audit Subclass	Audit Subclass Result
1	Overflow Audit	N/A	Passed
2	Race Conditions Audit	N/A	Passed
3	Authority Control Audit	Permission Vulnerability Audit Excessive Auditing Authority	Passed Passed
4	Safe Design Audit	Zeppelin Module Safe Compiler Version Hard-coded Version Fallback Function Safeuse Show Coding Security Function Return Value Security Call Function Security	Passed Passed Passed Passed Passed Passed Passed
5	Denial of Service Audit	N/A	Passed
6	Gas Optimization Audit	N/A	Passed
7	Design Logic Audit	N/A	Passed
8	Malicious Event Log Audit	N/A	Passed
9	"False Deposit" Vulnerability Audit	N/A	Passed
10	Uninitialized Storage Pointers Audit	N/A	Passed
11	Arithmetic Accuracy Deviation Audit	N/A	Passed

Contract Summary:

```
  - From Context
    - _msgData() (internal)
    - _msgSender() (internal)

+ Contract Ownable
  - From Context
    - _msgData() (internal)
    - _msgSender() (internal)
  - From Ownable
    - constructor() (internal)
    - owner() (public)
    - renounceOwnership() (public)
    - transferOwnership(address) (public)

+ Contract IERC20
  - From IERC20
    - allowance(address,address) (external)
    - approve(address,uint256) (external)
    - balanceOf(address) (external)
    - totalSupply() (external)
    - transfer(address,uint256) (external)
    - transferFrom(address,address,uint256) (external)
```

```
+ Contract ERC20
  - From Context
    - _msgData() (internal)
    - _msgSender() (internal)
  - From ERC20
    - _approve(address,address,uint256) (internal)
    - _beforeTokenTransfer(address,address,uint256) (internal)
    - _burn(address,uint256) (internal)
    - _mint(address,uint256) (internal)
    - _transfer(address,address,uint256) (internal)
    - allowance(address,address) (public)
    - approve(address,uint256) (public)
    - balanceOf(address) (public)
    - constructor(string,string,uint8) (public)
    - decimals() (public)
    - decreaseAllowance(address,uint256) (public)
    - increaseAllowance(address,uint256) (public)
    - name() (public)
    - symbol() (public)
    - totalSupply() (public)
    - transfer(address,uint256) (public)
    - transferFrom(address,address,uint256) (public)
```

```
+ Contract IPancakeFactory (Most derived contract)
  - From IPancakeFactory
    - allPairs(uint256) (external)
    - allPairsLength() (external)
    - createPair(address,address) (external)
    - feeTo() (external)
    - feeToSetter() (external)
    - getPair(address,address) (external)
    - setFeeTo(address) (external)
    - setFeeToSetter(address) (external)

+ Contract TransferHelper (Most derived contract)
  - From TransferHelper
    - safeApprove(address,address,uint256) (internal)
    - safeTransfer(address,address,uint256) (internal)
    - safeTransferETH(address,uint256) (internal)
    - safeTransferFrom(address,address,address,uint256) (internal)

+ Contract IPancakeRouter01
  - From IPancakeRouter01
    - WETH() (external)
    - addLiquidity(address,address,uint256,uint256,uint256,uint256,address,uint256) (external)
    - addLiquidityETH(address,uint256,uint256,uint256,address,uint256) (external)
    - factory() (external)
    - getAmountIn(uint256,uint256,uint256) (external)

    - getAmountOut(uint256,uint256,uint256) (external)

    - getAmountsIn(uint256,address[]) (external)

    - getAmountsOut(uint256,address[]) (external)

    - quote(uint256,uint256,uint256) (external)

    - removeLiquidity(address,address,uint256,uint256,uint256,address,uint256) (external)

    - removeLiquidityETH(address,uint256,uint256,uint256,address,uint256) (external)

    - removeLiquidityETHWithPermit(address,uint256,uint256,uint256,address,uint256,bool,uint8,bytes32,bytes32) (external)

    - removeLiquidityWithPermit(address,address,uint256,uint256,uint256,address,uint256,bool,uint8,bytes32,bytes32) (external)

    - swapETHForExactTokens(uint256,address[],address,uint256) (external)

    - swapExactETHForTokens(uint256,address[],address,uint256) (external)

    - swapExactTokensForETH(uint256,uint256,address[],address,uint256) (external)

    - swapExactTokensForTokens(uint256,uint256,address[],address,uint256) (external)

    - swapTokensForExactETH(uint256,uint256,address[],address,uint256) (external)

    - swapTokensForExactTokens(uint256,uint256,address[],address,uint256) (external)


+ Contract IPancakeRouter02 (Most derived contract)

  - From IPancakeRouter01

    - WETH() (external)

    - addLiquidity(address,address,uint256,uint256,uint256,uint256,address,uint256) (external)

    - addLiquidityETH(address,uint256,uint256,uint256,address,uint256) (external)

    - factory() (external)
```

  - getAmountIn(uint256,uint256,uint256) (external)

  - getAmountOut(uint256,uint256,uint256) (external)

  - getAmountsIn(uint256,address[]) (external)

  - getAmountsOut(uint256,address[]) (external)

  - quote(uint256,uint256,uint256) (external)

  - removeLiquidity(address,address,uint256,uint256,uint256,address,uint256) (external)

  - removeLiquidityETH(address,uint256,uint256,uint256,address,uint256) (external)

  - removeLiquidityETHWithPermit(address,uint256,uint256,uint256,address,uint256,bool,uint8,bytes32,bytes32) (external)

  - removeLiquidityWithPermit(address,address,uint256,uint256,uint256,address,uint256,bool,uint8,bytes32,bytes32) (external)

  - swapETHForExactTokens(uint256,address[],address,uint256) (external)

  - swapExactETHForTokens(uint256,address[],address,uint256) (external)

  - swapExactTokensForETH(uint256,uint256,address[],address,uint256) (external)

  - swapExactTokensForTokens(uint256,uint256,address[],address,uint256) (external)

  - swapTokensForExactETH(uint256,uint256,address[],address,uint256) (external)

  - swapTokensForExactTokens(uint256,uint256,address[],address,uint256) (external)

- From IPancakeRouter02

  - removeLiquidityETHSupportingFeeOnTransferTokens(address,uint256,uint256,uint256,address,uint256) (external)

  - removeLiquidityETHWithPermitSupportingFeeOnTransferTokens(address,uint256,uint256,uint256,address,uint256,bool,uint8,bytes32,bytes32) (external)

  - swapExactETHForTokensSupportingFeeOnTransferTokens(uint256,address[],address,uint256) (external)

    - swapExactTokensForETHSupportingFeeOnTransferTokens(uint256,uint256,address[],address,uint256) (external)

    - swapExactTokensForTokensSupportingFeeOnTransferTokens(uint256,uint256,address[],address,uint256) (external)

+ Contract IPancakePair (Most derived contract)

  - From IPancakePair

    - DOMAIN_SEPARATOR() (external)

    - MINIMUM_LIQUIDITY() (external)

    - PERMIT_TYPEHASH() (external)

    - allowance(address,address) (external)

    - approve(address,uint256) (external)

    - balanceOf(address) (external)

    - burn(address) (external)

    - decimals() (external)

    - factory() (external)

    - getReserves() (external)

    - initialize(address,address) (external)

    - kLast() (external)

    - mint(address) (external)

    - name() (external)

    - nonces(address) (external)

    - permit(address,address,uint256,uint256,uint8,bytes32,bytes32) (external)

    - price0CumulativeLast() (external)

    - price1CumulativeLast() (external)

```
    - skim(address) (external)
    - swap(uint256,uint256,address,bytes) (external)
    - symbol() (external)
    - sync() (external)
    - token0() (external)
    - token1() (external)
    - totalSupply() (external)
    - transfer(address,uint256) (external)
    - transferFrom(address,address,uint256) (external)

+ Contract IFungieDAO (Most derived contract)
  - From IFungieDAO
    - add_child_bnb_to_liquidity() (external)
    - add_external_child(address) (external)
    - disableTax() (external)
    - disable_tax_for_child(address) (external)
    - enableTax() (external)
    - enable_tax_for_child(address) (external)
    - get_child_contracts() (external)

+ Contract SafeMath (Most derived contract)
  - From SafeMath
    - add(uint256,uint256) (internal)
    - div(uint256,uint256) (internal)
    - div(uint256,uint256,string) (internal)
    - mod(uint256,uint256) (internal)
    - mod(uint256,uint256,string) (internal)
    - mul(uint256,uint256) (internal)
    - sub(uint256,uint256) (internal)
    - sub(uint256,uint256,string) (internal)
    - tryAdd(uint256,uint256) (internal)
    - tryDiv(uint256,uint256) (internal)
    - tryMod(uint256,uint256) (internal)
    - tryMul(uint256,uint256) (internal)
    - trySub(uint256,uint256) (internal)

+ Contract Child (Most derived contract)
  - From Ownable
    - constructor() (internal)
    - owner() (public)
    - renounceOwnership() (public)
    - transferOwnership(address) (public)
  - From Context
    - _msgData() (internal)
    - _msgSender() (internal)
  - From ERC20
    - _approve(address,address,uint256) (internal)
    - _beforeTokenTransfer(address,address,uint256) (internal)
    - _burn(address,uint256) (internal)
    - _mint(address,uint256) (internal)
```

  - allowance(address,address) (public)
  - approve(address,uint256) (public)
  - balanceOf(address) (public)
  - constructor(string,string,uint8) (public)
  - decimals() (public)
  - decreaseAllowance(address,uint256) (public)
  - increaseAllowance(address,uint256) (public)
  - name() (public)
  - symbol() (public)
  - totalSupply() (public)
  - transfer(address,uint256) (public)
  - transferFrom(address,address,uint256) (public)
- From Child
  - _transfer(address,address,uint256) (internal)
  - _transferExcluded(address,address,uint256) (private)
  - _transferIfNotLauched(address,address,uint256) (private)
  - _transferStandard(address,address,uint256) (private)
  - addExcluded(address) (public)
  - addLiquidity(uint256,uint256) (internal)
  - addToBlacklist(address[]) (public)
  - changeWithdrawInterval(uint256) (public)
  - constructor(uint8,uint8,uint8,uint8,uint8,address,address,uint8,address) (public)
  - getWithdrawableAmount(address) (public)
  - launch() (public)
  - receive() (external)

- removeExcluded(address) (public)

- removeFromBlacklist(address[]) (public)

- swapAndLiquify(uint256) (internal)

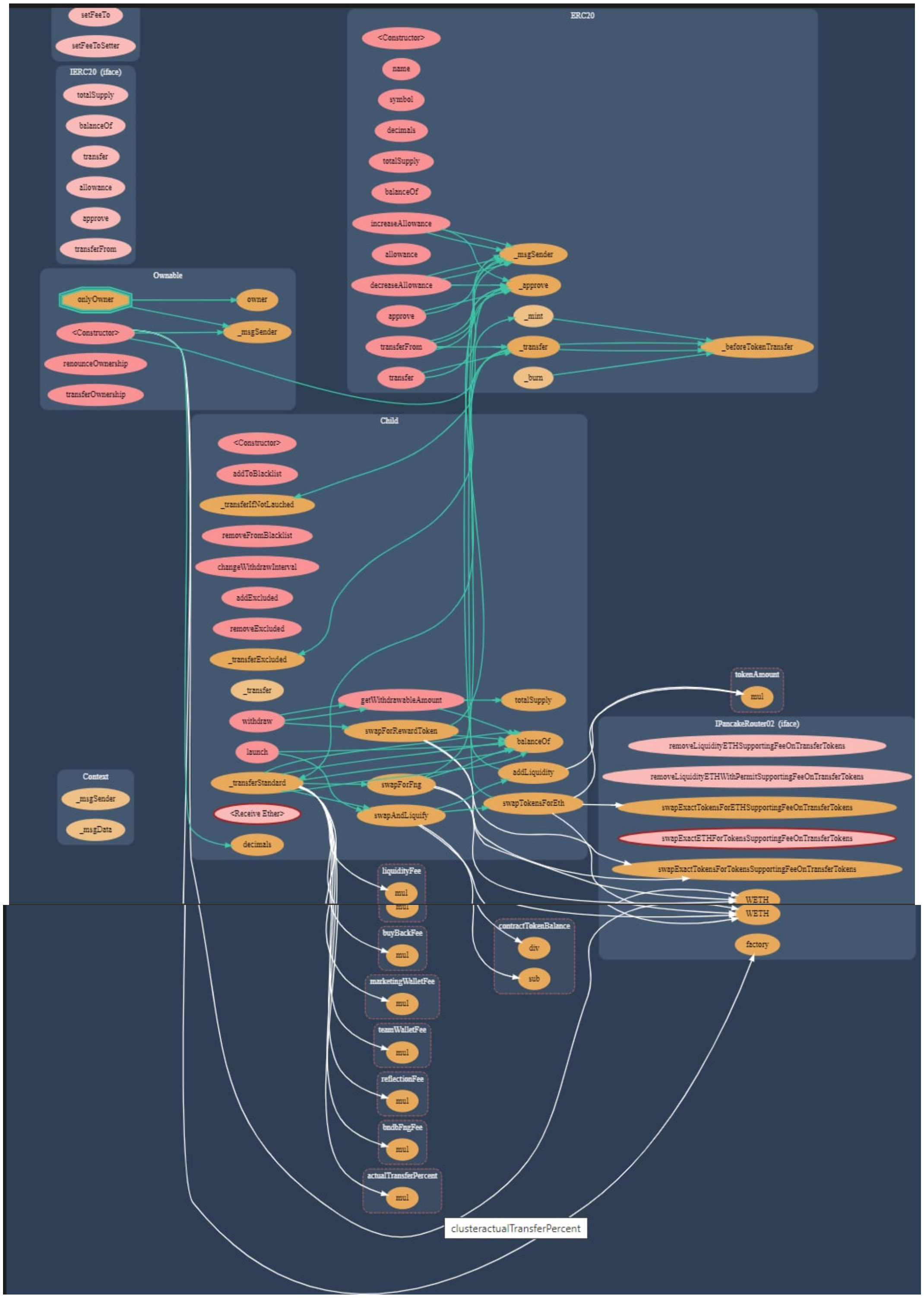
- swapForFng(uint256,address) (internal)

- swapForRewardToken(uint256,address) (internal)

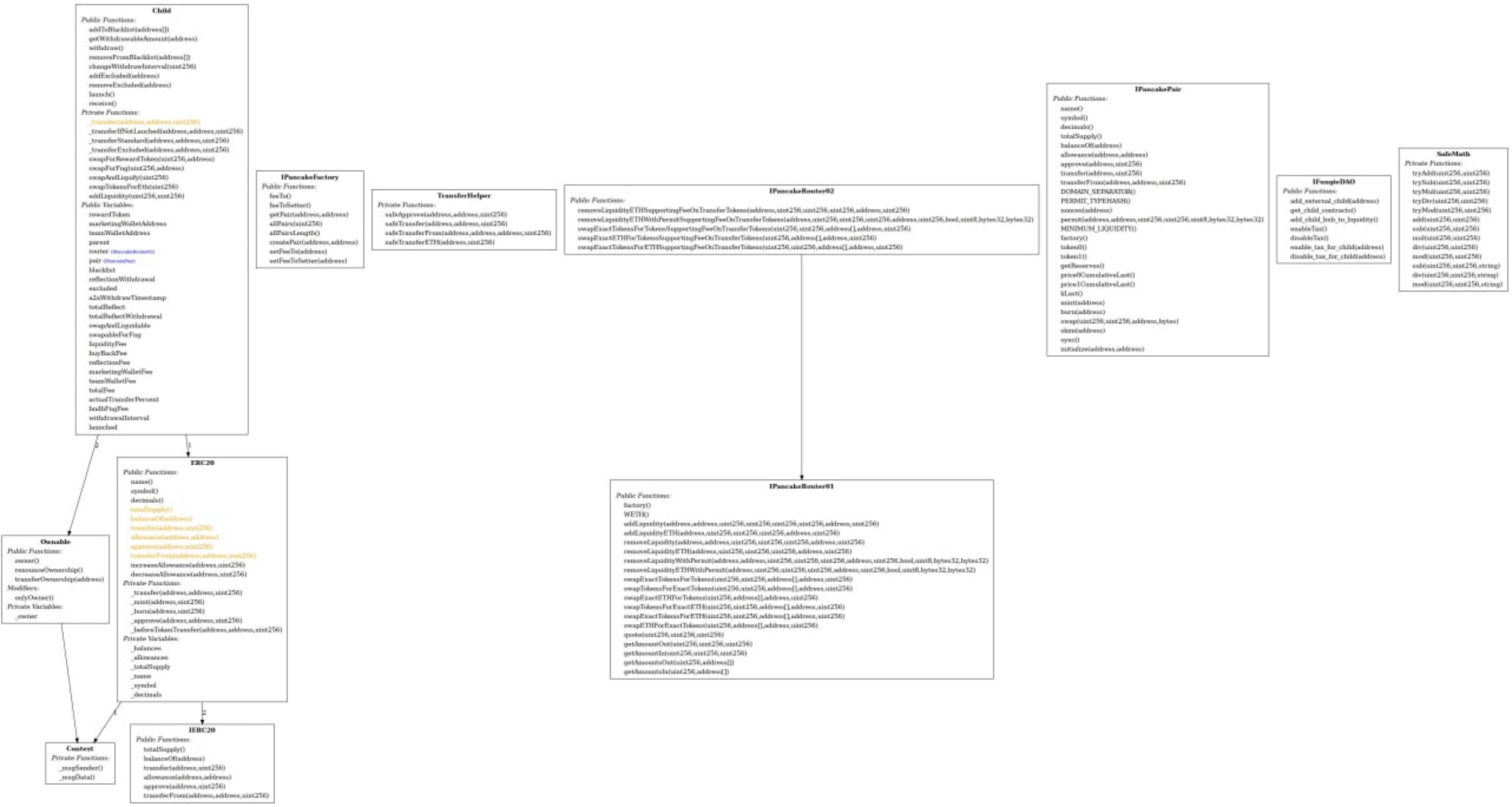
- swapTokensForEth(uint256) (internal)

- withdraw() (public)

Child.Sol.Call.Graph



Child.Sol.Inheritance.Graph.


Child
Public Functions:
addToBlacklist(address[])
getWithdrawableAmount(address)
withdraw()
removeFromBlacklist(address[])
changeWithdrawInterval(uint256)
addExcluded(address)
removeExcluded(address)
launch()
receive()
Private Functions:
_transfer(address,address,uint256)
_transferIfNotLauched(address,address,uint256)
_transferStandard(address,address,uint256)
_transferExcluded(address,address,uint256)
swapForRewardToken(uint256,address)
swapForFog(uint256,address)
swapAndLiquify(uint256)
swapTokensForEth(uint256)
addLiquidity(uint256,uint256)
Public Variables:
rewardToken
marketingWalletAddress
teamWalletAddress
parent
router (IPancakeRouter02)
pair (IPancakePair)
blacklist
reflectionWithdrawal
excluded
a2aWithdrawTimestamp
totalReflect
totalReflectWithdrawal
swapAndLiquidable
swapableForFog
liquidityFee
buyBackFee
reflectionFee
marketingWalletFee
teamWalletFee
totalFee
actualTransferPercent
bndbFogFee
withdrawalInterval
launched
2
1
ERC20
Public Functions:
name()
symbol()
decimals()
totalSupply()
balanceOf(address)
transfer(address,uint256)
allowance(address,address)
approve(address,uint256)
transferFrom(address,address,uint256)
increaseAllowance(address,uint256)
decreaseAllowance(address,uint256)
Private Functions:
_transfer(address,address,uint256)
_mint(address,uint256)
_burn(address,uint256)
_approve(address,address,uint256)
_beforeTokenTransfer(address,address,uint256)
Private Variables:
_balances
_allowances
_totalSupply
_name
_symbol
_decimals
Ownable
Public Functions:
owner()
renounceOwnership()
transferOwnership(address)
Modifiers:
onlyOwner()
Private Variables:
_owner
1
2
Context
Private Functions:
_msgSender()
_msgData()
IERC20
Public Functions:
totalSupply()
balanceOf(address)
transfer(address,uint256)
allowance(address,address)
approve(address,uint256)
transferFrom(address,address,uint256)
IPancakeFactory
Public Functions:
feeTo()
feeToSetter()
getPair(address,address)
allPairs(uint256)
allPairsLength()
createPair(address,address)
setFeeTo(address)
setFeeToSetter(address)
TransferHelper
Private Functions:
safeApprove(address,address,uint256)
safeTransfer(address,address,uint256)
safeTransferFrom(address,address,address,uint256)
safeTransferETH(address,uint256)
IPancakeRouter02
Public Functions:
removeLiquidityETHSupportingFeeOnTransferTokens(address,uint256,uint256,uint256,address,uint256)
removeLiquidityETHWithPermitSupportingFeeOnTransferTokens(address,uint256,uint256,uint256,address,uint256,bool,uint8,bytes32,bytes32)
swapExactTokensForTokensSupportingFeeOnTransferTokens(uint256,uint256,address[],address,uint256)
swapExactETHForTokensSupportingFeeOnTransferTokens(uint256,address[],address,uint256)
swapExactTokensForETHSupportingFeeOnTransferTokens(uint256,uint256,address[],address,uint256)
IPancakeRouter01
Public Functions:
factory()
WETH()
addLiquidity(address,address,uint256,uint256,uint256,uint256,address,uint256)
addLiquidityETH(address,uint256,uint256,uint256,address,uint256)
removeLiquidity(address,address,uint256,uint256,uint256,address,uint256)
removeLiquidityETH(address,uint256,uint256,uint256,address,uint256)
removeLiquidityWithPermit(address,address,uint256,uint256,uint256,address,uint256,bool,uint8,bytes32,bytes32)
removeLiquidityETHWithPermit(address,uint256,uint256,uint256,address,uint256,bool,uint8,bytes32,bytes32)
swapExactTokensForTokens(uint256,uint256,address[],address,uint256)
swapTokensForExactTokens(uint256,uint256,address[],address,uint256)
swapExactETHForTokens(uint256,address[],address,uint256)
swapTokensForExactETH(uint256,uint256,address[],address,uint256)
swapExactTokensForETH(uint256,uint256,address[],address,uint256)
swapETHForExactTokens(uint256,address[],address,uint256)
quote(uint256,uint256,uint256)
getAmountOut(uint256,uint256,uint256)
getAmountIn(uint256,uint256,uint256)
getAmountsOut(uint256,address[])
getAmountsIn(uint256,address[])
IPancakePair
Public Functions:
name()
symbol()
decimals()
totalSupply()
balanceOf(address)
allowance(address,address)
approve(address,uint256)
transfer(address,uint256)
transferFrom(address,address,uint256)
DOMAIN_SEPARATOR()
PERMIT_TYPEHASH()
nonces(address)
permit(address,address,uint256,uint256,uint8,bytes32,bytes32)
MINIMUM_LIQUIDITY()
factory()
token0()
token1()
getReserves()
price0CumulativeLast()
price1CumulativeLast()
kLast()
mint(address)
burn(address)
swap(uint256,uint256,address,bytes)
skim(address)
sync()
initialize(address,address)
IFungieDAO
Public Functions:
add_external_child(address)
get_child_contracts()
add_child_bnb_to_liquidity()
enableTax()
disableTax()
enable_tax_for_child(address)
disable_tax_for_child(address)
SafeMath
Private Functions:
tryAdd(uint256,uint256)
trySub(uint256,uint256)
tryMul(uint256,uint256)
tryDiv(uint256,uint256)
tryMod(uint256,uint256)
add(uint256,uint256)
sub(uint256,uint256)
mul(uint256,uint256)
div(uint256,uint256)
mod(uint256,uint256)
sub(uint256,uint256,string)
div(uint256,uint256,string)
mod(uint256,uint256,string)

High Severity Issues

No High Severity Issues found.

Moderate Severity Issues.

No Moderate Severity Issues found.

Low Severity Issues

No Low Severity Issues found.

Conclusion

All high and medium severity issues fixed in past work with the FungieDao Development Team.

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