

ZakumiFi Smart Contract Audit Report



28 Oct 2022



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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain	
ZakumiFi	ZakumiFi	Binance Smart Chain	

Addresses

Contract address	0x2efdff1e566202f82e774bb7add18c56cbb9427d	
Contract deployer address	0xC18A15C32784a81FbdF45E5C286716Dabb970c7d	

Project Website

https://zakumi.io/

Codebase

https://bscscan.com/address/0x2efdff1e566202f82e774bb7add18c56cbb9427d#code



SUMMARY

ZakumiFi is a DeFi Layer 1 ecosystem that supports users' comprehensive access to Dapps, NFT World, GameFi projects, Staking, Yield farming services, swap, and wallet protocols in the most straightforward way.

Contract Summary

Documentation Quality

ZakumiFi 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 ZakumiFi 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 132, 142, 150, 169, 171, 183, 184, 198, 200, 484, 484, 485, 550, 557, 600, 600, 605, 605, 629, 629, 631, 642, 643, 658, 686, 689, 689, 694, 694 and 702.
- 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 648, 649, 676 and 677.



CONCLUSION

We have audited the ZakumiFi project released on October 2022 to discover issues and identify potential security vulnerabilities in ZakumiFi 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 satisfactory results with low-risk issues.

The issues found in the ZakumiFi 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 and out-of-bounds array access. The index access expression can cause an exception in case of an invalid array index value.



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.	
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.	
Race Conditions	SWC-114	Race Conditions and Transactions Order Dependency should not be possible.	
Authorization through tx.origin	SWC-115	tx.origin should not be used for authorization.	
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.	
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.	
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.	
Unused variables	SWC-131 SWC-135	Unused variables are allowed in Solidity and they do not pose a direct security issue.	
Unexpected Ether balance	SWC-132	Contracts can behave erroneously when they strictly assume a specific Ether balance.	
Hash Collisions Variable	SWC-133	Using abi.encodePacked() with multiple variable length arguments can, in certain situations, lead to a hash collision.	
Hardcoded gas amount	SWC-134	The transfer() and send() functions forward a fixed amount of 2300 gas.	
Unencrypted Private Data	SWC-136	It is a common misconception that private type variables cannot be read.	



SMART CONTRACT ANALYSIS

Started	Thursday Oct 27 2022 01:39:54 GMT+0000 (Coordinated Universal Time)		
Finished	Friday Oct 28 2022 05:51:20 GMT+0000 (Coordinated Universal Time)		
Mode	Standard		
Main Source File	ZakumiFi.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-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





LINE 132

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
131 unchecked {
132 _approve(sender, _msgSender(), currentAllowance - amount);
133 }
134 }
135
136
```



LINE 142

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
141 function increaseAllowance(address spender, uint256 addedValue) public virtual
returns (bool) {
142 __approve(_msgSender(), spender, _allowances[_msgSender()][spender] + addedValue);
143 return true;
144 }
145
146
```



SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 150

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
149 unchecked {
150 _approve(_msgSender(), spender, currentAllowance - subtractedValue);
151 }
152
153 return true;
154
```



LINE 169

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
168 unchecked {
169 _balances[sender] = senderBalance - amount;
170 }
171 _balances[recipient] += amount;
172
173
```



LINE 171

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

Locations

170 }
171 _balances[recipient] += amount;
172
173 emit Transfer(sender, recipient, amount);
174
175



LINE 183

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

Locations

182
183 _totalSupply += amount;
184 _balances[account] += amount;
185 emit Transfer(address(0), account, amount);
186
187



LINE 184

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

Locations

183 _totalSupply += amount; 184 _balances[account] += amount; 185 emit Transfer(address(0), account, amount); 186 187 _afterTokenTransfer(address(0), account, amount); 188



LINE 198

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
197 unchecked {
198 _balances[account] = accountBalance - amount;
199 }
200 _totalSupply -= amount;
201
202
```



LINE 200

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
199 }
200 _totalSupply -= amount;
201
202 emit Transfer(account, address(0), amount);
203
204
```



LINE 484

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
483
484 __mint(owner(), 6e7 * (10 ** 18));
485 swapTokensAtAmount = totalSupply() / 5000;
486 }
487
488
```



LINE 484

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
483
484 __mint(owner(), 6e7 * (10 ** 18));
485 swapTokensAtAmount = totalSupply() / 5000;
486 }
487
488
```



LINE 485

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
484 __mint(owner(), 6e7 * (10 ** 18));
485 swapTokensAtAmount = totalSupply() / 5000;
486 }
487
488 receive() external payable {
489
```



LINE 550

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
549 function updateFeeShares(uint256 _marketingFeeShare, uint256 _liquidityFeeShare)
external onlyOwner {
550 require(_marketingFeeShare + _liquidityFeeShare == 100, "Fee shares must add up to
100");
551 marketingShare = _marketingFeeShare;
552 liquidityShare = _liquidityFeeShare;
553 emit FeeSharesUpdated(marketingShare, liquidityShare);
554
```



LINE 557

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
556 function updateMarketingWalletShares(uint256 _marketingSharel, uint256
_marketingShare2) external onlyOwner {
557 require(_marketingShare1 + _marketingShare2 == 100, "Marketing fee shares must add
up to 100");
558 marketingShare1 = _marketingShare1;
559 marketingShare2 = _marketingShare2;
560 }
561
```





LINE 600

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
599 if(liquidityShare > 0) {
600 uint256 liquidityTokens = contractTokenBalance * liquidityShare / 100;
601 swapAndLiquify(liquidityTokens);
602 }
603
604
```



LINE 600

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
599 if(liquidityShare > 0) {
600 uint256 liquidityTokens = contractTokenBalance * liquidityShare / 100;
601 swapAndLiquify(liquidityTokens);
602 }
603
604
```



LINE 605

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
604 if(marketingShare > 0) {
605 uint256 marketingTokens = contractTokenBalance * marketingShare / 100;
606 swapAndSendMarketing(marketingTokens);
607 }
608
609
```



LINE 605

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
604 if(marketingShare > 0) {
605 uint256 marketingTokens = contractTokenBalance * marketingShare / 100;
606 swapAndSendMarketing(marketingTokens);
607 }
608
609
```



LINE 629

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

Locations

628 }
629 uint256 fees = amount * _totalFees / 100;
630
631 amount = amount - fees;
632
633



LINE 629

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

Locations

628 }
629 uint256 fees = amount * _totalFees / 100;
630
631 amount = amount - fees;
632
633



SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 631

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
630
631 amount = amount - fees;
632
633 super._transfer(from, address(this), fees);
634 }
635
```



LINE 642

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
641 function swapAndLiquify(uint256 tokens) private {
642 uint256 half = tokens / 2;
643 uint256 otherHalf = tokens - half;
644
645 uint256 initialBalance = address(this).balance;
646
```



LINE 643

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
642 uint256 half = tokens / 2;
643 uint256 otherHalf = tokens - half;
644
645 uint256 initialBalance = address(this).balance;
646
647
```



LINE 658

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
657
658 uint256 newBalance = address(this).balance - initialBalance;
659
660 uniswapV2Router.addLiquidityETH{value: newBalance}(
661 address(this),
662
```



LINE 686

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
685
686 uint256 newBalance = address(this).balance - initialBalance;
687
688 if (marketingSharel > 0) {
689 uint256 marketing1BNB = newBalance * marketingShare1 / 100;
690
```



LINE 689

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
688 if (marketingSharel > 0) {
689 uint256 marketing1BNB = newBalance * marketingSharel / 100;
690 sendBNB(payable(marketingWallet1), marketing1BNB);
691 }
692
693
```



LINE 689

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
688 if (marketingSharel > 0) {
689 uint256 marketing1BNB = newBalance * marketingSharel / 100;
690 sendBNB(payable(marketingWallet1), marketing1BNB);
691 }
692
693
```



LINE 694

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
693 if (marketingShare2 > 0) {
694 uint256 marketing2BNB = newBalance * marketingShare2 / 100;
695 sendBNB(payable(marketingWallet2), marketing2BNB);
696 }
697
698
```



LINE 694

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
693 if (marketingShare2 > 0) {
694 uint256 marketing2BNB = newBalance * marketingShare2 / 100;
695 sendBNB(payable(marketingWallet2), marketing2BNB);
696 }
697
698
```



LINE 702

Iow SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- ZakumiFi.sol

```
701 function setSwapTokensAtAmount(uint256 newAmount) external onlyOwner{
702 require(newAmount > totalSupply() / 100000, "SwapTokensAtAmount must be greater
than 0.001% of total supply");
703 swapTokensAtAmount = newAmount;
704 }
705 }
706
```



LINE 648

Iow SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- ZakumiFi.sol

```
647 address[] memory path = new address[](2);
648 path[0] = address(this);
649 path[1] = uniswapV2Router.WETH();
650
651 uniswapV2Router.swapExactTokensForETHSupportingFeeOnTransferTokens(
652
```



LINE 649

Iow SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- ZakumiFi.sol

```
648 path[0] = address(this);
649 path[1] = uniswapV2Router.WETH();
650
651 uniswapV2Router.swapExactTokensForETHSupportingFeeOnTransferTokens(
652 half,
653
```



LINE 676

Iow SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- ZakumiFi.sol

```
675 address[] memory path = new address[](2);
676 path[0] = address(this);
677 path[1] = uniswapV2Router.WETH();
678
679 uniswapV2Router.swapExactTokensForETHSupportingFeeOnTransferTokens(
680
```



LINE 677

Iow SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- ZakumiFi.sol

```
676 path[0] = address(this);
677 path[1] = uniswapV2Router.WETH();
678
679 uniswapV2Router.swapExactTokensForETHSupportingFeeOnTransferTokens(
680 tokenAmount,
681
```



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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.

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