



BullDogeAI

# Smart Contract Audit Report

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# AUDITED DETAILS

## Audited Project

Project name	Token ticker	Blockchain
BullDogeAI	BDA	Binance Smart Chain

## Addresses

Contract address	0x29b6F1f4f6513A6363E32D092Bf95319eC5266B9
Contract deployer address	0xE449936B5a82dD2c24cA03D9DBcA2176425D0A3b

## Project Website

<https://bulldogeai.com/>

## Codebase

<https://bscscan.com/address/0x29b6F1f4f6513A6363E32D092Bf95319eC5266B9#code>

# SUMMARY

BullDogeAI is based on the success of OpenAI's latest release of ChatGPT. BullDogeAI can answer questions, helping you with tasks like composing emails, writing essays, writing code, and writing content.

## Contract Summary

### **Documentation Quality**

BullDogeAI 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 BullDogeAI 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 138, 148, 156, 175, 177, 189, 190, 204, 206, 638, 638, 639, 639, 700, 700, 702, 702, 705, 744, 748, 749 and 765.
- 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 578, 579, 754 and 755.

## CONCLUSION

We have audited the BullDogeAI project released on January 2023 to discover issues and identify potential security vulnerabilities in BullDogeAI 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 a satisfactory result with some low-risk issues.

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



# SMART CONTRACT ANALYSIS

Started	Tuesday Jan 31 2023 05:30:20 GMT+0000 (Coordinated Universal Time)
Finished	Wednesday Feb 01 2023 17:02:50 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	BullDogeAIToken.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-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

## SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 138

### low SEVERITY

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

### Source File

- BullDogeAIToken.sol

### Locations

```
137     unchecked {  
138         _approve(sender, _msgSender(), currentAllowance - amount);  
139     }  
140 }  
141  
142
```

# SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 148

## low SEVERITY

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

## Source File

- BullDogeAIToken.sol

## Locations

```
147  function increaseAllowance(address spender, uint256 addedValue) public virtual
returns (bool) {
148  _approve(_msgSender(), spender, _allowances[_msgSender()][spender] + addedValue);
149  return true;
150  }
151
152
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 156

## low SEVERITY

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

## Source File

- BullDogeAIToken.sol

## Locations

```
155     unchecked {
156         _approve(_msgSender(), spender, currentAllowance - subtractedValue);
157     }
158
159     return true;
160
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 175

## low SEVERITY

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

## Source File

- BullDogeAIToken.sol

## Locations

```
174 unchecked {  
175   _balances[sender] = senderBalance - amount;  
176 }  
177 _balances[recipient] += amount;  
178  
179
```

## SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 177

### low SEVERITY

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

### Source File

- BullDogeAIToken.sol

### Locations

```
176     }  
177     _balances[recipient] += amount;  
178  
179     emit Transfer(sender, recipient, amount);  
180  
181
```

## SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 189

### low SEVERITY

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

### Source File

- BullDogeAIToken.sol

### Locations

```
188
189  _totalSupply += amount;
190  _balances[account] += amount;
191  emit Transfer(address(0), account, amount);
192
193
```



## SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 190

### low SEVERITY

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

### Source File

- BullDogeAIToken.sol

### Locations

```
189  _totalSupply += amount;
190  _balances[account] += amount;
191  emit Transfer(address(0), account, amount);
192
193  _afterTokenTransfer(address(0), account, amount);
194
```

## SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 204

### low SEVERITY

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

### Source File

- BullDogeAIToken.sol

### Locations

```
203     unchecked {  
204         _balances[account] = accountBalance - amount;  
205     }  
206     _totalSupply -= amount;  
207  
208
```

# SWC-101 | ARITHMETIC OPERATION "-=" DISCOVERED

LINE 206

## low SEVERITY

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

## Source File

- BullDogeAIToken.sol

## Locations

```
205     }  
206     _totalSupply -= amount;  
207  
208     emit Transfer(account, address(0), amount);  
209  
210
```

## SWC-101 | ARITHMETIC OPERATION "\*" DISCOVERED

LINE 638

### low SEVERITY

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

### Source File

- BullDogeAIToken.sol

### Locations

```
637
638  _mint(owner(), 100_000_000 * 10**decimals());
639  swapTokensAtAmount = 3000 * 10**decimals();
640  }
641
642
```

# SWC-101 | ARITHMETIC OPERATION "\*\*" DISCOVERED

LINE 638

## low SEVERITY

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

## Source File

- BullDogeAIToken.sol

## Locations

```
637
638  _mint(owner(), 100_000_000 * 10**decimals());
639  swapTokensAtAmount = 3000 * 10**decimals();
640  }
641
642
```

# SWC-101 | ARITHMETIC OPERATION "\*" DISCOVERED

LINE 639

## low SEVERITY

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

## Source File

- BullDogeAIToken.sol

## Locations

```
638  _mint(owner(), 100_000_000 * 10**decimals());
639  swapTokensAtAmount = 3000 * 10**decimals();
640  }
641
642  receive() external payable {}
643
```

# SWC-101 | ARITHMETIC OPERATION "\*\*" DISCOVERED

LINE 639

## low SEVERITY

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

## Source File

- BullDogeAIToken.sol

## Locations

```
638  _mint(owner(), 100_000_000 * 10**decimals());
639  swapTokensAtAmount = 3000 * 10**decimals();
640  }
641
642  receive() external payable {}
643
```

# SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 700

## low SEVERITY

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

## Source File

- BullDogeAIToken.sol

## Locations

```
699  if (takeFee) {
700  uint256 fees = (amount * taxFee) / 100;
701  if (isBot(from, to)) {
702  fees = (amount * 45) / 100;
703  }
704
```



# SWC-101 | ARITHMETIC OPERATION "\*" DISCOVERED

LINE 700

## low SEVERITY

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

## Source File

- BullDogeAIToken.sol

## Locations

```
699  if (takeFee) {
700  uint256 fees = (amount * taxFee) / 100;
701  if (isBot(from, to)) {
702  fees = (amount * 45) / 100;
703  }
704
```

# SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 702

## low SEVERITY

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

## Source File

- BullDogeAIToken.sol

## Locations

```
701  if (isBot(from, to)) {  
702  fees = (amount * 45) / 100;  
703  }  
704  
705  amount = amount - fees;  
706
```

# SWC-101 | ARITHMETIC OPERATION "\*" DISCOVERED

LINE 702

## low SEVERITY

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

## Source File

- BullDogeAIToken.sol

## Locations

```
701  if (isBot(from, to)) {  
702  fees = (amount * 45) / 100;  
703  }  
704  
705  amount = amount - fees;  
706
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 705

## low SEVERITY

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

## Source File

- BullDogeAIToken.sol

## Locations

```
704
705  amount = amount - fees;
706
707  if (from == uniswapV2Pair) {
708    super._transfer(from, address(this), fees);
709
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 744

## low SEVERITY

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

## Source File

- BullDogeAIToken.sol

## Locations

```
743     function isBot(address from, address to) private view returns (bool) {
744     return block.timestamp - launchTime < 10 && launchTime != 0 && (uniswapV2Pair == to
|| uniswapV2Pair == from);
745     }
746
747     function swapAndLiquify(uint256 tokens) private {
748
```

# SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 748

## low SEVERITY

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

## Source File

- BullDogeAIToken.sol

## Locations

```
747 function swapAndLiquify(uint256 tokens) private {
748     uint256 half = tokens / 2;
749     uint256 otherHalf = tokens - half;
750
751     uint256 initialBalance = address(this).balance;
752
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 749

## low SEVERITY

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

## Source File

- BullDogeAIToken.sol

## Locations

```
748 uint256 half = tokens / 2;  
749 uint256 otherHalf = tokens - half;  
750  
751 uint256 initialBalance = address(this).balance;  
752  
753
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 765

## low SEVERITY

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

## Source File

- BullDogeAIToken.sol

## Locations

```
764
765     uint256 newBalance = address(this).balance - initialBalance;
766
767     uniswapV2Router.addLiquidityETH{ value: newBalance }(address(this), otherHalf, 0,
0, owner(), block.timestamp);
768
769
```



## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 578

### low SEVERITY

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

### Source File

- BullDogeAIToken.sol

### Locations

```
577 address[] memory path = new address[](2);
578 path[0] = address(token);
579 path[1] = dexRouter.WETH();
580
581 uint256 balance = token.balanceOf(address(this));
582
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 579

### low SEVERITY

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

### Source File

- BullDogeAIToken.sol

### Locations

```
578 path[0] = address(token);
579 path[1] = dexRouter.WETH();
580
581 uint256 balance = token.balanceOf(address(this));
582
583
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 754

### low SEVERITY

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

### Source File

- BullDogeAIToken.sol

### Locations

```
753 address[] memory path = new address[](2);
754 path[0] = address(this);
755 path[1] = uniswapV2Router.WETH();
756
757 uniswapV2Router.swapExactTokensForETHSupportingFeeOnTransferTokens(
758
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 755

### low SEVERITY

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

### Source File

- BullDogeAIToken.sol

### Locations

```
754 path[0] = address(this);
755 path[1] = uniswapV2Router.WETH();
756
757 uniswapV2Router.swapExactTokensForETHSupportingFeeOnTransferTokens(
758     half,
759
```

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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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