



ProTools

# Smart Contract Audit Report

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## Disclaimer

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# AUDITED DETAILS

## Audited Project

Project name	Token ticker	Blockchain
ProTools	PTOL	Ethereum

## Addresses

Contract address	0x82B9680101Dad9a09fd5E2Dd4E1385096587Bf75
Contract deployer address	0x38B617c6A17B2B072C5cBE34aE09735A32Fd245d

## Project Website

<https://protools.tech/>

## Codebase

<https://etherscan.io/address/0x82B9680101Dad9a09fd5E2Dd4E1385096587Bf75#code>

# SUMMARY

ProTools is an ecosystem way with a simple goal – as a tool to create convenience, security, and accessibility for DeFi investors and developers. Protools utilities and services will be developed with safety and investor convenience in mind, to fix classic problems plaguing DeFi, from a simple workflow.

## Contract Summary

### Documentation Quality

ProTools 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 ProTools with the discovery of several low issues.

### Test Coverage

Test coverage of the project is 100% ( Through Codebase )

## Audit Findings Summary

- SWC-100 SWC-108 | Explicitly define visibility for all state variables on lines 130, 131, 141, 142, 144, 145, 147, 148, 149, 150 and 159.
- SWC-101 | It is recommended to use vetted safe math libraries for arithmetic operations consistently on lines 17, 26, 33, 34, 42, 137, 137, 138, 138, 149, 158, 158, 213, 310, 310, 316, 316 and 322.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 14.
- 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 258, 259, 294 and 295.

## CONCLUSION

We have audited the ProTools project released on January 2023 to discover issues and identify potential security vulnerabilities in ProTools 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 ProTools 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, a floating pragma is set, a state variable visibility is not set 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.	<b>ISSUE FOUND</b>
Integer Overflow and Underflow	SWC-101	If unchecked math is used, all math operations should be safe from overflows and underflows.	<b>ISSUE FOUND</b>
Outdated Compiler Version	SWC-102	It is recommended to use a recent version of the Solidity compiler.	<b>PASS</b>
Floating Pragma	SWC-103	Contracts should be deployed with the same compiler version and flags that they have been tested thoroughly.	<b>ISSUE FOUND</b>
Unchecked Call Return Value	SWC-104	The return value of a message call should be checked.	<b>PASS</b>
Unprotected Ether Withdrawal	SWC-105	Due to missing or insufficient access controls, malicious parties can withdraw from the contract.	<b>PASS</b>
SELFDESTRUCT Instruction	SWC-106	The contract should not be self-destructible while it has funds belonging to users.	<b>PASS</b>
Reentrancy	SWC-107	Check effect interaction pattern should be followed if the code performs recursive call.	<b>PASS</b>
Uninitialized Storage Pointer	SWC-109	Uninitialized local storage variables can point to unexpected storage locations in the contract.	<b>PASS</b>
Assert Violation	SWC-110 SWC-123	Properly functioning code should never reach a failing assert statement.	<b>ISSUE FOUND</b>
Deprecated Solidity Functions	SWC-111	Deprecated built-in functions should never be used.	<b>PASS</b>
Delegate call to Untrusted Callee	SWC-112	Delegatecalls should only be allowed to trusted addresses.	<b>PASS</b>

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	Thursday Jan 12 2023 16:44:25 GMT+0000 (Coordinated Universal Time)
Finished	Friday Jan 13 2023 04:26:38 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	ProTools.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-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
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SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
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# SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 17

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
16  function add(uint256 a, uint256 b) internal pure returns (uint256) {
17  uint256 c = a + b;
18  require(c >= a, "SafeMath: addition overflow");
19  return c;
20  }
21
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 26

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
25  require(b <= a, errorMessage);
26  uint256 c = a - b;
27  return c;
28  }
29  function mul(uint256 a, uint256 b) internal pure returns (uint256) {
30
```

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

LINE 33

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
32  }
33  uint256 c = a * b;
34  require(c / a == b, "SafeMath: multiplication overflow");
35  return c;
36  }
37
```

# SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 34

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
33  uint256 c = a * b;
34  require(c / a == b, "SafeMath: multiplication overflow");
35  return c;
36  }
37  function div(uint256 a, uint256 b) internal pure returns (uint256) {
38
```

# SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 42

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
41  require(b > 0, errorMessage);
42  uint256 c = a / b;
43  return c;
44  }
45  }
46
```

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

LINE 137

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
136
137  uint256 public _totalSupply = 1_000_000 * (10 ** _decimals);
138  uint256 public _maxWalletAmount = (_totalSupply * 4) / 100;
139  uint256 public _maxTxAmount = _totalSupply.mul(3).div(100); //3%
140
141
```



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

LINE 137

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
136
137  uint256 public _totalSupply = 1_000_000 * (10 ** _decimals);
138  uint256 public _maxWalletAmount = (_totalSupply * 4) / 100;
139  uint256 public _maxTxAmount = _totalSupply.mul(3).div(100); //3%
140
141
```

# SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 138

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
137 uint256 public _totalSupply = 1_000_000 * (10 ** _decimals);
138 uint256 public _maxWalletAmount = (_totalSupply * 4) / 100;
139 uint256 public _maxTxAmount = _totalSupply.mul(3).div(100); //3%
140
141 mapping (address => uint256) _balances;
142
```

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

LINE 138

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
137 uint256 public _totalSupply = 1_000_000 * (10 ** _decimals);
138 uint256 public _maxWalletAmount = (_totalSupply * 4) / 100;
139 uint256 public _maxTxAmount = _totalSupply.mul(3).div(100); //3%
140
141 mapping (address => uint256) _balances;
142
```

# SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 149

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
148 uint256 marketingFee = 15;
149 uint256 totalFee = liquidityFee + marketingFee;
150 uint256 feeDenominator = 100;
151
152 address public marketingFeeReceiver = 0xdfD89c2933Bd155031E72bBe83d7c9Bf2C12Ad5a;
153
```

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

LINE 158

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
157 bool public swapEnabled = true;
158 uint256 public swapThreshold = _totalSupply / 1000 * 5; // 0.5%
159 bool inSwap;
160 modifier swapping() { inSwap = true; _; inSwap = false; }
161
162
```

# SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 158

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
157 bool public swapEnabled = true;
158 uint256 public swapThreshold = _totalSupply / 1000 * 5; // 0.5%
159 bool inSwap;
160 modifier swapping() { inSwap = true; _; inSwap = false; }
161
162
```

# SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 213

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
212  if (recipient != pair && recipient != DEAD) {
213  require(isTxLimitExempt[recipient] || _balances[recipient] + amount <=
_maxWalletAmount, "Transfer amount exceeds the bag size.");
214  }
215
216  if(shouldSwapBack()){ swapBack(); }
217
```

# SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 310

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
309     function setWalletLimit(uint256 amountPercent) external onlyOwner {
310         _maxWalletAmount = (_totalSupply * amountPercent ) / 1000;
311     }
312
313
314
```



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

LINE 310

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
309     function setWalletLimit(uint256 amountPercent) external onlyOwner {
310         _maxWalletAmount = (_totalSupply * amountPercent ) / 1000;
311     }
312
313
314
```

# SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 316

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
315     function maxTxAmount(uint256 amountPercent) external onlyOwner {
316         _maxTxAmount = (_totalSupply * amountPercent) / 1000;
317     }
318
319     function setFee(uint256 _liquidityFee, uint256 _marketingFee) external onlyOwner {
320
```

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

LINE 316

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
315     function maxTxAmount(uint256 amountPercent) external onlyOwner {
316         _maxTxAmount = (_totalSupply * amountPercent) / 1000;
317     }
318
319     function setFee(uint256 _liquidityFee, uint256 _marketingFee) external onlyOwner {
320
```

# SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 322

## low SEVERITY

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

## Source File

- ProTools.sol

## Locations

```
321     marketingFee = _marketingFee;
322     totalFee = liquidityFee + marketingFee;
323 }
324
325     event AutoLiquify(uint256 amountETH, uint256 amountBOG);
326
```

## SWC-103 | A FLOATING PRAGMA IS SET.

LINE 14

### low SEVERITY

The current pragma Solidity directive is `""^0.8.5""`. It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

### Source File

- ProTools.sol

### Locations

```
13 // SPDX-License-Identifier: MIT
14 pragma solidity ^0.8.5;
15 library SafeMath {
16 function add(uint256 a, uint256 b) internal pure returns (uint256) {
17 uint256 c = a + b;
18
```





## SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 141

### low SEVERITY

It is best practice to set the visibility of state variables explicitly. The default visibility for "\_balances" is internal. Other possible visibility settings are public and private.

### Source File

- ProTools.sol

### Locations

```
140
141 mapping (address => uint256) _balances;
142 mapping (address => mapping (address => uint256)) _allowances;
143
144 mapping (address => bool) isFeeExempt;
145
```



## SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 142

### low SEVERITY

It is best practice to set the visibility of state variables explicitly. The default visibility for "\_allowances" is internal. Other possible visibility settings are public and private.

### Source File

- ProTools.sol

### Locations

```
141 mapping (address => uint256) _balances;  
142 mapping (address => mapping (address => uint256)) _allowances;  
143  
144 mapping (address => bool) isFeeExempt;  
145 mapping (address => bool) isTxLimitExempt;  
146
```

## SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 144

### low SEVERITY

It is best practice to set the visibility of state variables explicitly. The default visibility for "isFeeExempt" is internal. Other possible visibility settings are public and private.

### Source File

- ProTools.sol

### Locations

```
143
144 mapping (address => bool) isFeeExempt;
145 mapping (address => bool) isTxLimitExempt;
146
147 uint256 liquidityFee = 4;
148
```

## SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 145

### low SEVERITY

It is best practice to set the visibility of state variables explicitly. The default visibility for "isTxLimitExempt" is internal. Other possible visibility settings are public and private.

### Source File

- ProTools.sol

### Locations

```
144 mapping (address => bool) isFeeExempt;  
145 mapping (address => bool) isTxLimitExempt;  
146  
147 uint256 liquidityFee = 4;  
148 uint256 marketingFee = 15;  
149
```

## SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 147

### low SEVERITY

It is best practice to set the visibility of state variables explicitly. The default visibility for "liquidityFee" is internal. Other possible visibility settings are public and private.

### Source File

- ProTools.sol

### Locations

```
146
147  uint256 liquidityFee = 4;
148  uint256 marketingFee = 15;
149  uint256 totalFee = liquidityFee + marketingFee;
150  uint256 feeDenominator = 100;
151
```

## SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 148

### low SEVERITY

It is best practice to set the visibility of state variables explicitly. The default visibility for "marketingFee" is internal. Other possible visibility settings are public and private.

### Source File

- ProTools.sol

### Locations

```
147 uint256 liquidityFee = 4;
148 uint256 marketingFee = 15;
149 uint256 totalFee = liquidityFee + marketingFee;
150 uint256 feeDenominator = 100;
151
152
```

## SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 149

### low SEVERITY

It is best practice to set the visibility of state variables explicitly. The default visibility for "totalFee" is internal. Other possible visibility settings are public and private.

### Source File

- ProTools.sol

### Locations

```
148 uint256 marketingFee = 15;
149 uint256 totalFee = liquidityFee + marketingFee;
150 uint256 feeDenominator = 100;
151
152 address public marketingFeeReceiver = 0xdfD89c2933Bd155031E72bBe83d7c9Bf2C12Ad5a;
153
```

## SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 150

### low SEVERITY

It is best practice to set the visibility of state variables explicitly. The default visibility for "feeDenominator" is internal. Other possible visibility settings are public and private.

### Source File

- ProTools.sol

### Locations

```
149 uint256 totalFee = liquidityFee + marketingFee;
150 uint256 feeDenominator = 100;
151
152 address public marketingFeeReceiver = 0xdfD89c2933Bd155031E72bBe83d7c9Bf2C12Ad5a;
153
154
```

## SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 159

### low SEVERITY

It is best practice to set the visibility of state variables explicitly. The default visibility for "inSwap" is internal. Other possible visibility settings are public and private.

### Source File

- ProTools.sol

### Locations

```
158 uint256 public swapThreshold = _totalSupply / 1000 * 5; // 0.5%
159 bool inSwap;
160 modifier swapping() { inSwap = true; _; inSwap = false; }
161
162 constructor () Ownable(msg.sender) {
163
```



## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 258

### low SEVERITY

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

### Source File

- ProTools.sol

### Locations

```
257 address[] memory path = new address[](2);
258 path[0] = address(this);
259 path[1] = router.WETH();
260
261 uint256 balanceBefore = address(this).balance;
262
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 259

### low SEVERITY

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

### Source File

- ProTools.sol

### Locations

```
258 path[0] = address(this);
259 path[1] = router.WETH();
260
261 uint256 balanceBefore = address(this).balance;
262
263
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 294

### low SEVERITY

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

### Source File

- ProTools.sol

### Locations

```
293     address[] memory path = new address[](2);
294     path[0] = router.WETH();
295     path[1] = address(this);
296
297     router.swapExactETHForTokensSupportingFeeOnTransferTokens{value: amount}(
298
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 295

### low SEVERITY

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

### Source File

- ProTools.sol

### Locations

```
294 path[0] = router.WETH();
295 path[1] = address(this);
296
297 router.swapExactETHForTokensSupportingFeeOnTransferTokens{value: amount}(
298 0,
299
```

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Sysfixed is a blockchain security certification organization established in 2021 with the objective to provide smart contract security services and verify their correctness in blockchain-based protocols. Sysfixed automatically scans for security vulnerabilities in Ethereum and other EVM-based blockchain smart contracts. Sysfixed a comprehensive range of analysis techniques—including static analysis, dynamic analysis, and symbolic execution—can accurately detect security vulnerabilities to provide an in-depth analysis report. With a vibrant ecosystem of world-class integration partners that amplify developer productivity, Sysfixed can be utilized in all phases of your project's lifecycle. Our team of security experts is dedicated to the research and improvement of our tools and techniques used to fortify your code.