Smart Contract Audit Report

Audit was conducted on the **DTools** Smart Contract

Smart Contract	**DTools**
Type Of Utility	BEP20
Platform	DogeChain, Ethereum Virtual Machine
ChainId	2000
Language	Solidity 0.8.4
Address	0x1df5c9B7789BD1416d005C15A42762481C95eDC2

Audit Score

Section	Score
Codebase Security	100%
Codebase Complexity and Practices	98%
Owner Privileges and Control	90%
Overall Score	96%

Branding:

Website

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Content

Scope of the audit

This Audit Report mainly focuses on the overall security of the **DTools** token Smart Contract. This audit was conducted with rigorous attention to the general implementation of the contract and by examining the overall architectural layout of the software implementation. The reliability and correctness of this smart contract's codebase are being assessed.

Security Scope

Identifies security related issues within each contract and the system of contract.

General Code Quality

A full assessment of the code quality and general software architecture patterns and best practices used.

Auditing Methods Used

Rigorous testing of the project has been performed. Detailed code base analysis was conducted, reviewing the smart contract architecture to ensure it is structured and safe.

A detailed, line by line inspection of the codebase was conducted to find any potential security vulnerabilities such as denial of service attacks, race conditions, transaction-ordering dependence, timestamp dependence, and denial of service attacks.

Automated and manual testing was employed that included:
– Analysis of on-chain data security
– Analysis of the code in-depth and detailed, manual review of the code, line-by-line.
– Deployment of the code on an in-house testnet blockchain and running live tests●
– Determining failure preparations and if worst-case scenario protocols are in place
– Analysis of any third-party code use and verifying the overall security of this

Tools Used:
Remix IDE, Ganache, SolHint, VScode, Mythril, Contract Library Hardhat

Assessing Possible Issues

Any issue detected during the conduction of this audit will be categorized under one of 3 severity levels: low, medium, and high.

Low level Severity Issues

Issues that do not pose any serious threat to the functionality of the software.

Medium level Severity issues

Issues that can cause potential problems to the overall health of the software application but that can be fixed without having any breaking changes on the current functionality.

High level Severity issues

Critical issues that affect the smart contract's overall performance and functionality. These issues should be fixed urgently.

General Issues Report

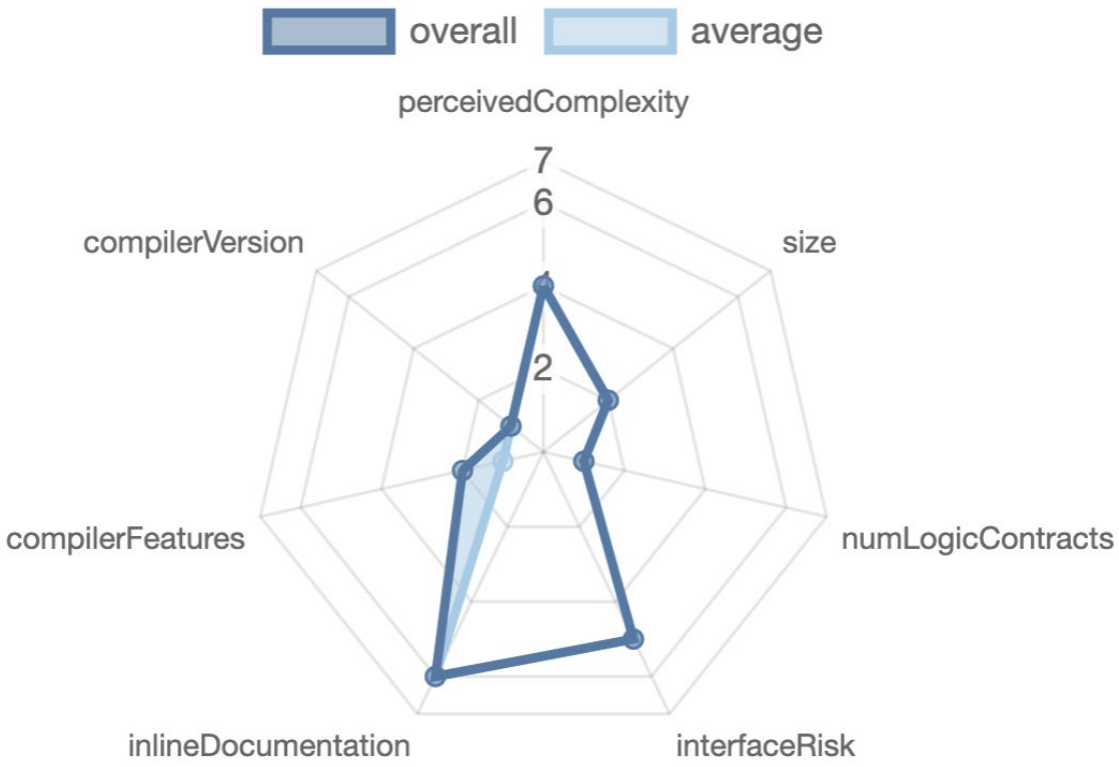
General issues that were found during manual and automatic assessments

No	Issue Verification	Status
1	Compiler warnings	Passed
2	Reentrancy and Race Conditions.	Passed
3	Possible delays in data delivery.	Passed
4	Oracle calls.	Passed
5	Front running.	Passed
6	DoS with block gas limit.	Passed
7	DoS with Revert.	Passed
8	Timestamp dependence.	Passed
9	Methods execution permissions.	Passed
10	Economy model.	Passed
11	The impact of the exchange rate on the logic.	Passed
12	Private user data leaks.	Passed
13	Scoping and Declarations.	Passed
14	Arithmetic accuracy.	Passed

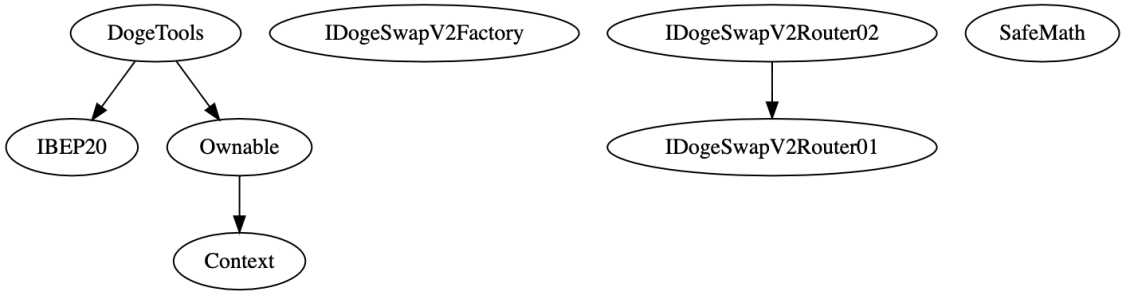
Issues Found

Low Level Severity	Medium Level Severity	High Level Severity
0	0	0

Risk Assessment



Contract Dependency Graphs



Manual Code Inspection

The code of the target contract and its dependencies was reviewed, deployed, and manually tested by our developers.

No	Contract	Issues
1	DTools	4
2	Ownable	None
3	Context	None

Issues Found

Low Level Severity	Medium Level Severity	High Level Severity
2	2	0

Inspections

Contract	DTools
Address	0xA0eB9a6063Df850F611AA69C60025c7f8eB4d6ee
Issues	4
Notes	BEP-20 Token

Issues

1. Front Running Attack Surface

```
557         router.swapExactTokensForWDOGESupportingFeeOnTransferTokens(
558             amountToSwap,
559             0,
560             path,
561             address(this),
562             block.timestamp
563         );
```

Line	**557**
Severity	**Medium**
Method	**swapExactTokensForWDOGESupportingFeeOnTransferTokens (uint256 tokenAmount, address _to)**
Description	**Setting the minimum expect output amount for a swap to be 0 can lead to frontrunning attacks that especially if there are high volume transactions involved.**
Notes	**Calculate and set a minimum output amount or limit the max transaction amount to reduce the attack probability.**

2. Swap Time Limit

```
557         router.swapExactTokensForWDOGESupportingFeeOnTransferTokens(
558             amountToSwap,
559             0,
560             path,
561             address(this),
562             block.timestamp
563         );
```

Line	**562**
Severity	**Low**
Method	**swapExactTokensForWDOGESupportingFeeOnTransferTokens**
Description	**Setting the deadline parameter to the current block's timestamp may cause transactions to fail.**
Notes	**Calculate and set a minimum output amount or limit the max transaction amount to reduce the attack probability.**

3. Complex Logical Check

```
592     function checkBot(address sender, address recipient) internal {
593         if(isCont(recipient) && !isInternal[recipient] && !isFeeExempt[recipient] && checkOn || sender == pair && !isInternal
            [sender] && msg.sender != tx.origin && checkOn){
594             isBlacklisted[recipient] = true;
595         }
596     }
```

Line	**593**
Severity	**Low**
Method	**checkBot**
Description	**Complex logical check**
Notes	**Break the logic operation into multiple steps so that it is easier to understand**

4. Automatic restriction mechanism

```
511
512         // Blacklist
513         if (blacklistMode) {
514             require(!isBlacklisted[sender],"Blacklisted");
515         }
516
517         if (recipient == pair && !authorizations[sender]) {
518             require(tx.gasprice <= gas, ">Sell on wallet action");
519         }
520         if (tx.gasprice >= gas && recipient != pair) {
521             isBlacklisted[recipient] = true;
522         }
523
```

Line	**520**
Severity	**Medium**
Method	**_transferFrom**
Description	**An increase in gas price will lead to the senders being automatically banned.**
Notes	**Real Time calculations of the `gas` variable should be implemented**

Access Control and Privileges

The contract uses a single owner access control system for setting contract specific parameters.

DTools.sol

Role	Privileges
Owner	`renounceOwnership`, `transferOwnership`, `setBridge`, `setisInternal`, `setMode`, `setWalletLimit`, `setGas`,`setFees`, `setIsFeeExempt`, `setIsTxLimitExempt`, `enable_blacklist`, `manage_blacklist`, `rescueToken`, `clearStuckBalance`

The owner can:

- Exclude accounts from fess
- Set fees
- Halt trading
- Block addresses from receiving or sending transactions

Notes

The owner of this contract can censor/restrict parties from accessing this contract's functionality.

Conclusion

The **DTools** Smart contracts do not contain any high severity issues!

Audit Score

Section	Score
Codebase Security	100%
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DTOOLS has passed the KYC Verification & Smart Contract Audit by HedgePay Sdn Bhd

KYC Verifications: 15th August 2022. 01:01 am UTC
https://verify.passbase.com/hedgepay

Smart contract Audit: 15th August 2022. 16:00 pm UTC
https://github.com/HedgePay/audits

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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. 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 based on 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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