



JSE Token

Smart Contract Audit Report

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
JSE Token	JSE	Ethereum

Addresses

Contract address	0x2d184014b5658c453443aa87c8e9c4d57285620b
Contract deployer address	0x00D443438E94F73C0938bd241DeCAf535CCcE731

Project Website

<https://jsecoin.com/>

Codebase

<https://etherscan.io/address/0x2d184014b5658c453443aa87c8e9c4d57285620b#code>

SUMMARY

The JSEcoin project has created an energy-efficient cryptocurrency powered by surplus resources within web browsers and adopted globally by mainstream users. Most major cryptocurrencies rely on miners to carry out cryptography hashing, which is the mathematical process key to securing a blockchain, enabling the secure storage and transfer of data. Generally, this process consumes huge amounts of computing power and electricity due to its competitive nature as miners are rewarded for their efforts by receiving cryptocurrency payments.

Contract Summary

Documentation Quality

JSE Token provides a very poor documentation with standard of solidity base code.

- The technical description is provided unclear and disorganized.

Code Quality

The Overall quality of the basecode is poor.

- Solidity basecode and rules are unclear and disorganized by JSE Token.

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 263 and 265.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 5.
- SWC-107 | It is recommended to use a reentrancy lock, reentrancy weaknesses detected on lines 616 and 606.
- 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 235, 606 and 616.

CONCLUSION

We have audited the JSE Token project released in July 2018 to find issues and identify potential security vulnerabilities in the JSE Token project. This process is used to find technical issues and security loopholes that may be found in smart contracts.

The security audit report gave unsatisfactory results with the discovery of high-risk issues and several other low-risk issues.

Writing a contract that does not follow the Solidity style guide can pose a significant risk. The medium risk problem we found is An assertion violation was triggered. It is possible to trigger an assertion violation. Note that Solidity `assert()` statements should only be used to check invariants. Review the transaction trace generated for this issue and either make sure your program logic is correct, or use `require()` instead of `assert()` if your goal is to constrain user inputs or enforce preconditions. Remember to validate inputs from both callers (for instance, via passed arguments) and callees (for instance, via return values).

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.	ISSUE FOUND
Integer Overflow and Underflow	SWC-101	If unchecked math is used, all math operations should be safe from overflows and underflows.	PASS
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.	ISSUE FOUND
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.	ISSUE FOUND
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 Jul 10 2018 16:38:58 GMT+0000 (Coordinated Universal Time)
Finished	Wednesday Jul 11 2018 10:54:25 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	JSEToken.sol

Detected Issues

ID	Title	Severity	Status
SWC-110	AN ASSERTION VIOLATION WAS TRIGGERED.	medium	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-107	A CALL TO A USER-SUPPLIED ADDRESS IS EXECUTED.	low	acknowledged
SWC-107	A CALL TO A USER-SUPPLIED ADDRESS IS EXECUTED.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-123	REQUIREMENT VIOLATION.	low	acknowledged
SWC-123	REQUIREMENT VIOLATION.	low	acknowledged

SWC-110 | AN ASSERTION VIOLATION WAS TRIGGERED.

LINE 235

medium SEVERITY

It is possible to trigger an assertion violation. Note that Solidity `assert()` statements should only be used to check invariants. Review the transaction trace generated for this issue and either make sure your program logic is correct, or use `require()` instead of `assert()` if your goal is to constrain user inputs or enforce preconditions. Remember to validate inputs from both callers (for instance, via passed arguments) and callees (for instance, via return values).

Source File

- JSEToken.sol

Locations

```
234   c = a + b;  
235   assert(c >= a);  
236   return c;  
237   }  
238   }  
239
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 5

low SEVERITY

The current pragma Solidity directive is `""^0.4.23""`. 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

- JSEToken.sol

Locations

```
4
5  pragma solidity ^0.4.23;
6
7  // File: contracts/ERC223.sol
8
9
```

SWC-107 | A CALL TO A USER-SUPPLIED ADDRESS IS EXECUTED.

LINE 616

low SEVERITY

An external message call to an address specified by the caller is executed. Note that the callee account might contain arbitrary code and could re-enter any function within this contract. Reentering the contract in an intermediate state may lead to unexpected behaviour. Make sure that no state modifications are executed after this call and/or reentrancy guards are in place.

Source File

- JSEToken.sol

Locations

```
615 function transferAnyERC20Token(address tokenAddress, uint tokens) public onlyOwner
    returns (bool success) {
616     return ERC20(tokenAddress).transfer(owner, tokens);
617 }
618
619 function isContract(address _addr) private view returns (bool) {
620
```

SWC-107 | A CALL TO A USER-SUPPLIED ADDRESS IS EXECUTED.

LINE 606

low SEVERITY

An external message call to an address specified by the caller is executed. Note that the callee account might contain arbitrary code and could re-enter any function within this contract. Reentering the contract in an intermediate state may lead to unexpected behaviour. Make sure that no state modifications are executed after this call and/or reentrancy guards are in place.

Source File

- JSEToken.sol

Locations

```
605 ERC223ReceivingContract erc223Contract = ERC223ReceivingContract(_to);
606 erc223Contract.tokenFallback(msg.sender, _value, _data);
607
608 emit Transfer(msg.sender, _to, _value);
609 return true;
610
```

SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 263

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

- JSEToken.sol

Locations

```
262
263 mapping(address => uint256) balances;
264
265 uint256 totalSupply_;
266
267
```

SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 265

low SEVERITY

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

Source File

- JSEToken.sol

Locations

```
264
265  uint256 totalSupply_;
266
267  /**
268   * @dev total number of tokens in existence
269
```

SWC-123 | REQUIREMENT VIOLATION.

LINE 606

low SEVERITY

A requirement was violated in a nested call and the call was reverted as a result. Make sure valid inputs are provided to the nested call (for instance, via passed arguments).

Source File

- JSEToken.sol

Locations

```
605 ERC223ReceivingContract erc223Contract = ERC223ReceivingContract(_to);
606 erc223Contract.tokenFallback(msg.sender, _value, _data);
607
608 emit Transfer(msg.sender, _to, _value);
609 return true;
610
```


SWC-123 | REQUIREMENT VIOLATION.

LINE 616

low SEVERITY

A requirement was violated in a nested call and the call was reverted as a result. Make sure valid inputs are provided to the nested call (for instance, via passed arguments).

Source File

- JSEToken.sol

Locations

```
615  function transferAnyERC20Token(address tokenAddress, uint tokens) public onlyOwner
      returns (bool success) {
616  return ERC20(tokenAddress).transfer(owner, tokens);
617  }
618
619  function isContract(address _addr) private view returns (bool) {
620
```

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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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ABOUT US

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.