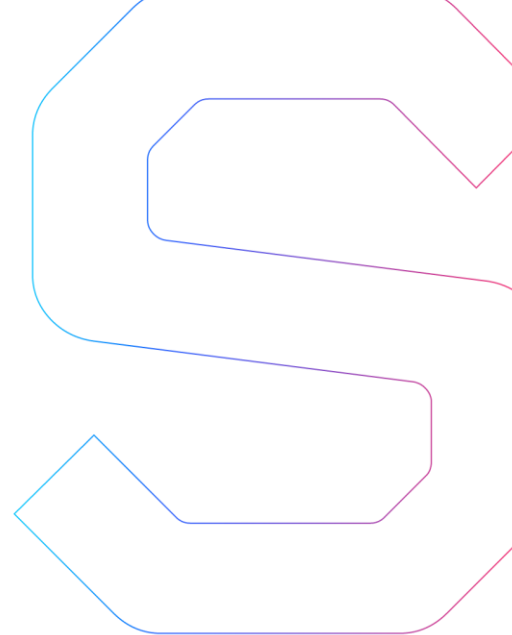


SmartDec



KaratGold Smart Contracts Security Analysis

This report is public.

Published: June 22, 2018



| | |
|---------------------------------|----|
| Abstract..... | 2 |
| Disclaimer | 2 |
| Summary | 2 |
| General recommendations..... | 2 |
| Procedure | 3 |
| Checked vulnerabilities | 4 |
| Project overview..... | 5 |
| Project description | 5 |
| Project architecture..... | 5 |
| Code logic | 6 |
| Automated analysis..... | 7 |
| Manual analysis | 9 |
| Critical issues | 9 |
| Medium severity issues | 9 |
| Low severity issues | 9 |
| Redundant code..... | 9 |
| Deprecated constructions | 10 |
| Using outdated library | 11 |
| Pragmas version..... | 11 |
| Implicit visibility level | 11 |
| Notes..... | 12 |
| ERC20 approve issue | 12 |
| Lack of the documentation | 12 |
| Appendix..... | 14 |
| Compilation output..... | 14 |
| Solhint output | 15 |
| Solium output | 21 |

Abstract

In this report, we consider the security of the KaratGold project. Our task is to find and describe security issues in the smart contracts of the platform.

Disclaimer

The audit does not give any warranties on the security of the code. One audit cannot be considered enough. We always recommend proceeding with several independent audits and a public bug bounty program to ensure the security of smart contracts. Besides, security audit is not an investment advice.

Summary

In this report, we have considered the security of KaratGold smart contracts. We performed our audit according to the [procedure](#) described below.

The audit has shown neither critical nor medium severity issues. However, a number of low severity issues were found.

The token contract has already been [deployed](#). The issues found during the audit do not endanger the project security.

General recommendations

The contracts code is of good code quality and does not contain issues that endanger project security. However, we would recommend completing the [Documentation](#) and informing users about [ERC20 approve issue](#).

In addition, if the developers decide to improve the code, we would recommend following the best practices for [Pragmas](#) and [OpenZeppelin](#) versions, removing [Redundant code](#) and [Deprecated constructions](#), and marking [Visibility explicitly](#).

However, these are minor issues, which do not influence code operation.

The text below is for technical use; it details the statements made in Summary and General recommendations.

Procedure

In our audit, we consider the following crucial features of the smart contract code:

1. Whether the code is secure.
2. Whether the code corresponds to the documentation (including whitepaper).
3. Whether the code meets best practices in efficient use of gas, code readability, etc.

We perform our audit according to the following procedure:

- automated analysis
 - we scan project's smart contracts with our own Solidity static code analyzer [SmartCheck](#)
 - we scan project's smart contracts with several publicly available automated Solidity analysis tools such as [Remix](#), [Oyente](#), and [Solhint](#)
 - we manually verify (reject or confirm) all the issues found by tools
- manual audit
 - we manually analyze smart contracts for security vulnerabilities
 - we check smart contracts logic and compare it with the one described in the whitepaper
 - we check ERC20 compliance
- report
 - we reflect all the gathered information in the report

Checked vulnerabilities

We have scanned KaratGold smart contracts for commonly known and more specific vulnerabilities. Here are some of the commonly known vulnerabilities that we considered (the full list includes them but is not limited to them):

- [Reentrancy](#)
- [Timestamp Dependence](#)
- [Gas Limit and Loops](#)
- [DoS with \(Unexpected\) Throw](#)
- [DoS with \(Unexpected\) revert](#)
- [DoS with Block Gas Limit](#)
- [Transaction-Ordering Dependence](#)
- [Use of tx.origin](#)
- [Exception disorder](#)
- [Gasless send](#)
- [Balance equality](#)
- [Byte array](#)
- [Transfer forwards all gas](#)
- [ERC20 API violation](#)
- [Malicious libraries](#)
- [Compiler version not fixed](#)
- [Redundant fallback function](#)
- [Send instead of transfer](#)
- [Style guide violation](#)
- [Unchecked external call](#)
- [Unchecked math](#)
- [Unsafe type inference](#)
- [Implicit visibility level](#)
- [Address hardcoded](#)
- [Using delete for arrays](#)
- [Integer overflow/underflow](#)
- [Locked money](#)
- [Private modifier](#)
- [Revert/require functions](#)
- [Using var](#)
- [Visibility](#)
- [Using blockhash](#)
- [Using SHA3](#)
- [Using suicide](#)
- [Using throw](#)
- [Using inline assembly](#)

Project overview

Project description

In our analysis, we have considered KaratGold [whitepaper](#) (“karatgold-wp.pdf”, sha1sum 9b24a6ab833ddb721e8f35dd9471b49a84e9cfb2) and [smart contracts code](#).

Project architecture

For the audit, we have been provided with the smart contracts code.

- The code successfully compiles with `solcjs` command (with some warnings, see [Compilation output](#) in [Appendix](#))

The provided code contains the following contracts from OpenZeppelin library with some minor modifications:

- **ERC20Basic**
- **ERC20**
- **BasicToken**
- **StandardToken**
- **Ownable**

The following contracts implement additional features for the token:

- **InvestorsFeature** (inherits **Ownable** and **StandardToken** contracts)
- **KaratBankCoin** (inherits **Ownable**, **StandardToken**, and **InvestorsFeature** contracts)

The total volume of audited Solidity code is 142 lines.

Code logic

KaratBankCoin is ERC20 compatible (compatibility has been checked during the audit) token contract with the following parameters:

- token name: "KaratBank Coin"
- token symbol: "KBC"
- token decimals: 7
- the initial supply: 12 000 000 000 tokens

Besides, some additional functionality is implemented:

1. The contract inherits **Ownable** contract. This means that the contract has an owner (initially, it is the address the contract was deployed from).
2. The contract includes `increaseApproval()` and `decreaseApproval()` functions. This makes changing the `allowance` mapping possible without using `approve()` function, which has a vulnerability (see [ERC20 approve issue](#)).
3. At the moment of deploy all the tokens are transferred to the token contract address.

The contract includes some additional functions:

```
function send(address addr, uint amount)
```

- Call restrictions: only owner can call the function
- Parameters requirements:
 - `addr` address is not null
 - `amount` is positive
- Logic:
 - puts every unique `addr` address in the `investors` array, which is publicly available
 - transfers `amount` of tokens from the token contract address to `addr` address

```
function moneyBack(address addr)
```

- Call restrictions: only owner can call the function
- Parameters requirements:
 - `addr` address is not null
- Logic: transfers all the ETH from the token contract address to `addr` address

```
function burnRemainder(uint)
```

- Call restrictions: only owner can call the function
- Logic: burns all the tokens from the token contract address

Automated analysis

We used several publicly available automated Solidity analysis tools. Here are the combined results of SmartCheck, Solhint, and Remix. Oyente has found no issues. All the issues found by tools were manually checked (rejected or confirmed).

False positives are constructions that were discovered by the tools as vulnerabilities but do not consist a security threat.

True positives are constructions that were discovered by the tools as vulnerabilities and can actually be exploited by attackers or lead to incorrect contracts operation.

Cases when these issues lead to actual bugs or vulnerabilities are described in the next section.

| Tool | Rule | False positives | True positives |
|------------------|-----------------------------------|-----------------|----------------|
| Remix | Gas requirement of function high | | 18 |
| | Variables have very similar names | | 3 |
| Total Remix | | | 21 |
| SmartCheck | Constant Functions | | 4 |
| | Erc20 Approve | | 1 |
| | No Payable Fallback | 7 | |
| | Pragmas Version | | 1 |
| | Reentrancy External Call | 6 | |
| | Unchecked Math | 1 | |
| | Visibility | | 2 |
| Total SmartCheck | | 14 | 8 |

| | | |
|----------------------|-------------------------------------|-----------|
| Solhint | Compiler version must be fixed | 1 |
| | Explicitly mark visibility of state | 2 |
| Total Solhint | | 3 |
| Total Overall | | 35 |
| | | 11 |

Manual analysis

The contracts were completely manually analyzed, their logic was checked and compared with the one described in the documentation. Besides, the results of the automated analysis were manually verified. All confirmed issues are described below.

Critical issues

Critical issues seriously endanger smart contracts security. We highly recommend fixing them.

The audit has shown no critical issues.

Medium severity issues

Medium issues can influence smart contracts operation in current implementation. We highly recommend addressing them.

The audit has shown no medium severity issues.

Low severity issues

Low severity issues can influence smart contracts operation in future versions of code. We recommend taking them into account.

Redundant code

The following lines include redundant code:

1. line 225:

```
function deposit(address investor, uint) internal {
```

The second argument in this function is redundant.

2. line 275:

```
function burnRemainder(uint) public onlyOwner {
```

The argument in this function is redundant.

We highly recommend removing redundant code in order to improve code readability.

Deprecated constructions

Deprecated syntax is used in some places in the code:

- `this.balance` is deprecated.

However, the mentioned construction is used in the code, line 272:

```
addr.transfer(this.balance);
```

We recommend using `address(this).balance`.

- `constant` modifier for functions is deprecated. However, our audit has shown the use of `constant` modifier for functions in the following places:

- line 41:

```
function balanceOf(address who) public constant returns  
(uint256);
```

- line 51:

```
function allowance(address owner, address spender) public  
constant returns (uint256);
```

- line 88:

```
function balanceOf(address _owner) public constant returns  
(uint256 balance) {
```

- line 146:

```
function allowance(address _owner, address _spender) public  
constant returns (uint256 remaining) {
```

We recommend using `view` instead of `constant`, since it will be deprecated for functions in compiler version 0.5.0.

- Invoking events without `emit` prefix is deprecated. However, `emit` prefix is not used in the following lines:

- line 261:

```
Transfer(address(0), this, INITIAL_SUPPLY);
```

- line 240:

```
Transfer(this, addr, amount);
```

- Defining constructor as function of the same name as the contract is deprecated. However, the constructor of the **KaratBankCoin** contract is implemented in the following way:

```
function KaratBankCoin() public {
```

We highly recommend not using deprecated constructions and following the best practices instead.

Using outdated library

The version of OpenZeppelin library used in the code is outdated. The contracts inherited in the token contract include deprecated constructions and some redundant code.

We recommend using the latest available version of OpenZeppelin library in case developer wants to redeploy the token contract.

Pragmas version

Solidity source files indicate the versions of the compiler they can be compiled with.

Example:

```
pragma solidity ^0.4.13; // bad: compiles w 0.4.13 and above
pragma solidity 0.4.13; // good: compiles w 0.4.13 only
```

We recommend following the latter example, as future compiler versions may handle certain language constructions in a way the developer did not foresee. Besides, we recommend using the latest compiler version – 0.4.24 at the moment.

Implicit visibility level

There are two state variables with implicit visibility level in the code:

- line 65:

```
mapping(address => uint256) balances;
```

- line 224:

```
mapping(address => bool) isInvestor;
```

We recommend specifying visibility levels (`public`, `private`, `external`, `internal`) explicitly and correctly in order to improve code readability.

Notes

ERC20 approve issue

There is [ERC20 approve issue](#): changing the approved amount from a nonzero value to another nonzero value allows a double spending with a front-running attack.

We recommend instructing users to follow one of two ways:

- not to use `approve()` function directly and to use `increaseApproval()/decreaseApproval()` functions instead
- to change the approved amount to 0, wait for the transaction to be mined, and then to change the approved amount to the desired value

Lack of the documentation

According to the whitepaper, ICO has already finished. The information regarding unsold tokens (about 7 000 000 000 KBC at the moment of audit) is not specified in the documentation.

Currently, all the unsold tokens are assigned to the token contract address, including tokens reserved for partners, referrals, etc. Therefore, tokens can be burned or transferred to any address without any restrictions.

We recommend completing the documentation by adding the relevant information.

This analysis was performed by [SmartDec](#).

Ivan Ivanitskiy, Chief Analytics Officer
Alexander Seleznev, Chief Business Development Officer
Igor Sobolev, Analyst
Pavel Kondratenkov, Analyst

Sergey Pavlin, Chief Operating Officer

A handwritten signature in black ink, appearing to read 'Pavlin', with a stylized flourish at the end.

June 22, 2018

Appendix

Compilation output

```
192:3: Warning: Defining constructors as functions with the same name as the contract is deprecated. Use "constructor(...) { ... }" instead.
```

```
function Ownable() public {  
  ^ (Relevant source part starts here and spans across multiple lines).
```

```
258:3: Warning: Defining constructors as functions with the same name as the contract is deprecated. Use "constructor(...) { ... }" instead.
```

```
function KaratBankCoin() public {  
  ^ (Relevant source part starts here and spans across multiple lines).
```

```
79:5: Warning: Invoking events without "emit" prefix is deprecated.
```

```
Transfer(msg.sender, _to, _value);  
^-----^
```

```
120:5: Warning: Invoking events without "emit" prefix is deprecated.
```

```
Transfer(_from, _to, _value);  
^-----^
```

```
136:5: Warning: Invoking events without "emit" prefix is deprecated.
```

```
Approval(msg.sender, _spender, _value);  
^-----^
```

```
158:5: Warning: Invoking events without "emit" prefix is deprecated.
```

```
Approval(msg.sender, _spender,  
allowed[msg.sender][_spender]);  
^-----^
```

```
169:5: Warning: Invoking events without "emit" prefix is deprecated.
```

```
Approval(msg.sender, _spender,  
allowed[msg.sender][_spender]);
```

```

^-----^

212:5: Warning: Invoking events without "emit" prefix is
deprecated.
    OwnershipTransferred(owner, newOwner);
    ^-----^

240:9: Warning: Invoking events without "emit" prefix is
deprecated.
    Transfer(this, addr, amount);
    ^-----^

261:5: Warning: Invoking events without "emit" prefix is
deprecated.
    Transfer(address(0), this, INITIAL_SUPPLY);
    ^-----^

272:21: Warning: Using contract member "balance" inherited from
the address type is deprecated. Convert the contract to "address"
type to access the member, for example use
"address(contract).balance" instead.
    addr.transfer(this.balance);
                ^-----^

```

Solhint output

```

1:17 warning Compiler version must be
fixed                                             compi
ler-fixed
7:1 error Definition must be surrounded with two blank line
indent                                         two-lines-top-level-separator
8:3 error Expected indentation of 4 spaces but found
2 indent
9:5 error Expected indentation of 8 spaces but found
4 indent
10:5 error Expected indentation of 8 spaces but found
4 indent
11:5 error Expected indentation of 8 spaces but found
4 indent
12:3 error Expected indentation of 4 spaces but found
2 indent
14:3 error Expected indentation of 4 spaces but found
2 indent

```



```

16:5 error Expected indentation of 8 spaces but found
4 indent
18:5 error Expected indentation of 8 spaces but found
4 indent
19:3 error Expected indentation of 4 spaces but found
2 indent
21:3 error Expected indentation of 4 spaces but found
2 indent
22:5 error Expected indentation of 8 spaces but found
4 indent
23:5 error Expected indentation of 8 spaces but found
4 indent
24:3 error Expected indentation of 4 spaces but found
2 indent
26:3 error Expected indentation of 4 spaces but found
2 indent
27:5 error Expected indentation of 8 spaces but found
4 indent
28:5 error Expected indentation of 8 spaces but found
4 indent
29:5 error Expected indentation of 8 spaces but found
4 indent
30:3 error Expected indentation of 4 spaces but found
2 indent
39:1 error Definition must be surrounded with two blank line
indent two-lines-top-level-separator
40:3 error Expected indentation of 4 spaces but found
2 indent
41:3 error Expected indentation of 4 spaces but found
2 indent
42:3 error Expected indentation of 4 spaces but found
2 indent
43:3 warning Event and function names must be
different no-simple-
event-func-name
43:3 error Expected indentation of 4 spaces but found
2 indent
50:1 error Definition must be surrounded with two blank line
indent two-lines-top-level-separator
51:3 error Expected indentation of 4 spaces but found
2 indent
52:3 error Expected indentation of 4 spaces but found
2 indent
53:3 error Expected indentation of 4 spaces but found
2 indent
54:3 error Expected indentation of 4 spaces but found
2 indent

```

```

62:1 error Definition must be surrounded with two blank line
indent two-lines-top-level-separator
63:3 error Expected indentation of 4 spaces but found
2 indent
65:3 error Expected indentation of 4 spaces but found
2 indent
65:3 warning Explicitly mark visibility of
state state-
visibility
72:3 warning Event and function names must be
different no-simple-
event-func-name
72:3 error Expected indentation of 4 spaces but found
2 indent
73:5 error Expected indentation of 8 spaces but found
4 indent
74:5 error Expected indentation of 8 spaces but found
4 indent
77:5 error Expected indentation of 8 spaces but found
4 indent
78:5 error Expected indentation of 8 spaces but found
4 indent
79:5 error Expected indentation of 8 spaces but found
4 indent
80:5 error Expected indentation of 8 spaces but found
4 indent
81:3 error Expected indentation of 4 spaces but found
2 indent
88:3 error Expected indentation of 4 spaces but found
2 indent
89:5 error Expected indentation of 8 spaces but found
4 indent
90:3 error Expected indentation of 4 spaces but found
2 indent
99:2 error Line length must be no more than 120 but current
length is 122 max-line-length
101:1 error Definition must be surrounded with two blank line
indent two-lines-top-level-separator
103:3 error Expected indentation of 4 spaces but found
2 indent
112:3 error Definitions inside contract / library must be
separated by one line separate-by-one-line-in-contract
112:3 error Expected indentation of 4 spaces but found
2 indent
113:5 error Expected indentation of 8 spaces but found
4 indent

```

| | | |
|-------|-------|--|
| 114:5 | error | Expected indentation of 8 spaces but found |
| 4 | | indent |
| 115:5 | error | Expected indentation of 8 spaces but found |
| 4 | | indent |
| 117:5 | error | Expected indentation of 8 spaces but found |
| 4 | | indent |
| 118:5 | error | Expected indentation of 8 spaces but found |
| 4 | | indent |
| 119:5 | error | Expected indentation of 8 spaces but found |
| 4 | | indent |
| 120:5 | error | Expected indentation of 8 spaces but found |
| 4 | | indent |
| 121:5 | error | Expected indentation of 8 spaces but found |
| 4 | | indent |
| 122:3 | error | Expected indentation of 4 spaces but found |
| 2 | | indent |
| 134:3 | error | Expected indentation of 4 spaces but found |
| 2 | | indent |
| 135:5 | error | Expected indentation of 8 spaces but found |
| 4 | | indent |
| 136:5 | error | Expected indentation of 8 spaces but found |
| 4 | | indent |
| 137:5 | error | Expected indentation of 8 spaces but found |
| 4 | | indent |
| 138:3 | error | Expected indentation of 4 spaces but found |
| 2 | | indent |
| 146:3 | error | Expected indentation of 4 spaces but found |
| 2 | | indent |
| 147:5 | error | Expected indentation of 8 spaces but found |
| 4 | | indent |
| 148:3 | error | Expected indentation of 4 spaces but found |
| 2 | | indent |
| 156:3 | error | Expected indentation of 4 spaces but found |
| 2 | | indent |
| 157:5 | error | Expected indentation of 8 spaces but found |
| 4 | | indent |
| 158:5 | error | Expected indentation of 8 spaces but found |
| 4 | | indent |
| 159:5 | error | Expected indentation of 8 spaces but found |
| 4 | | indent |
| 160:3 | error | Expected indentation of 4 spaces but found |
| 2 | | indent |
| 162:3 | error | Expected indentation of 4 spaces but found |
| 2 | | indent |
| 163:5 | error | Expected indentation of 8 spaces but found |
| 4 | | indent |

```

164:5 error Expected indentation of 8 spaces but found
4 indent
165:7 error Expected indentation of 12 spaces but found
6 indent
166:5 error Expected indentation of 8 spaces but found
4 indent
167:7 error Expected indentation of 12 spaces but found
6 indent
168:5 error Expected indentation of 8 spaces but found
4 indent
169:5 error Expected indentation of 8 spaces but found
4 indent
170:5 error Expected indentation of 8 spaces but found
4 indent
171:3 error Expected indentation of 4 spaces but found
2 indent
181:1 error Definition must be surrounded with two blank line
indent two-lines-top-level-separator
182:3 error Expected indentation of 4 spaces but found
2 indent
185:3 error Expected indentation of 4 spaces but found
2 indent
192:3 error Definitions inside contract / library must be
separated by one line separate-by-one-line-in-contract
192:3 error Expected indentation of 4 spaces but found
2 indent
193:5 error Expected indentation of 8 spaces but found
4 indent
194:3 error Expected indentation of 4 spaces but found
2 indent
200:3 error Definitions inside contract / library must be
separated by one line separate-by-one-line-in-contract
200:3 error Expected indentation of 4 spaces but found
2 indent
201:5 error Expected indentation of 8 spaces but found
4 indent
202:5 error Expected indentation of 8 spaces but found
4 indent
203:3 error Expected indentation of 4 spaces but found
2 indent
210:3 error Expected indentation of 4 spaces but found
2 indent
210:3 error Definitions inside contract / library must be
separated by one line separate-by-one-line-in-contract
211:5 error Expected indentation of 8 spaces but found
4 indent

```

```

212:5  error   Expected indentation of 8 spaces but found
4                                           indent
213:5  error   Expected indentation of 8 spaces but found
4                                           indent
214:3  error   Expected indentation of 4 spaces but found
2                                           indent
220:1  error   Definition must be surrounded with two blank line
indent                                     two-lines-top-level-separator
224:5  warning Explicitly mark visibility of
state                                     state-
visibility
225:5  error   Definitions inside contract / library must be
separated by one line                     separate-by-one-line-in-contract
226:9  error   Statement indentation is incorrect. Required
space after if                             statement-indent
247:1  error   Definition must be surrounded with two blank line
indent                                     two-lines-top-level-separator
247:69 error   Open bracket must be on same line. It must be
indented by other constructions by space  bracket-align
250:26 error   Constant name must be in capitalized
SNAKE_CASE                                const-name-
snakecase
250:3  error   Expected indentation of 4 spaces but found
2                                           indent
251:3  error   Expected indentation of 4 spaces but found
2                                           indent
251:26 error   Constant name must be in capitalized
SNAKE_CASE                                const-name-
snakecase
252:3  error   Expected indentation of 4 spaces but found
2                                           indent
252:25 error   Constant name must be in capitalized
SNAKE_CASE                                const-name-
snakecase
254:3  error   Expected indentation of 4 spaces but found
2                                           indent
258:3  error   Expected indentation of 4 spaces but found
2                                           indent
258:3  error   Definitions inside contract / library must be
separated by one line                     separate-by-one-line-in-contract
259:5  error   Expected indentation of 8 spaces but found
4                                           indent
260:5  error   Expected indentation of 8 spaces but found
4                                           indent
261:5  error   Expected indentation of 8 spaces but found
4                                           indent

```

```

262:3 error Expected indentation of 4 spaces but found
2 indent
266:3 error Expected indentation of 4 spaces but found
2 indent
266:3 error Definitions inside contract / library must be
separated by one line separate-by-one-line-in-contract
267:7 error Expected indentation of 8 spaces but found
6 indent
268:3 error Expected indentation of 4 spaces but found
2 indent
270:3 error Expected indentation of 4 spaces but found
2 indent
271:7 error Expected indentation of 8 spaces but found
6 indent
272:7 error Expected indentation of 8 spaces but found
6 indent
273:3 error Expected indentation of 4 spaces but found
2 indent
275:3 error Expected indentation of 4 spaces but found
2 indent
276:7 error Expected indentation of 8 spaces but found
6 indent
277:7 error Expected indentation of 8 spaces but found
6 indent
278:7 error Expected indentation of 8 spaces but found
6 indent
279:3 error Expected indentation of 4 spaces but found
2 indent

```

✘ 134 problems (129 errors, 5 warnings)

Solium output

```

8:2 error Only use indent of 4 spaces. indentation
12:0 error Only use indent of 4 spaces. indentation
14:2 error Only use indent of 4 spaces. indentation
19:0 error Only use indent of 4 spaces. indentation
21:2 error Only use indent of 4 spaces. indentation
24:0 error Only use indent of 4 spaces. indentation
26:2 error Only use indent of 4 spaces. indentation
30:0 error Only use indent of 4 spaces. indentation
40:2 error Only use indent of 4 spaces. indentation
41:2 error Only use indent of 4 spaces. indentation
41:41 warning Use 'view' instead of deprecated

```

```

'constant'.      no-constant
 42:2      error      Only use indent of 4 spaces.      indentation
 43:2      error      Only use indent of 4 spaces.      indentation
 51:2      error      Only use indent of 4 spaces.      indentation
 51:60     warning    Use 'view' instead of deprecated
'constant'.      no-constant
 52:2      error      Only use indent of 4 spaces.      indentation
 53:2      error      Only use indent of 4 spaces.      indentation
 54:2      error      Only use indent of 4 spaces.      indentation
 63:2      error      Only use indent of 4 spaces.      indentation
 65:2      error      Only use indent of 4 spaces.      indentation
 72:2      error      Only use indent of 4 spaces.      indentation
 81:0      error      Only use indent of 4 spaces.      indentation
 88:2      error      Only use indent of 4 spaces.      indentation
 88:44     warning    Use 'view' instead of deprecated
'constant'.      no-constant
 90:0      error      Only use indent of 4 spaces.      indentation
103:2      error      Only use indent of 4 spaces.      indentation
112:2      error      Only use indent of 4 spaces.      indentation
122:0      error      Only use indent of 4 spaces.      indentation
134:2      error      Only use indent of 4 spaces.      indentation
138:0      error      Only use indent of 4 spaces.      indentation
146:2      error      Only use indent of 4 spaces.      indentation
146:62     warning    Use 'view' instead of deprecated
'constant'.      no-constant
148:0      error      Only use indent of 4 spaces.      indentation
156:2      error      Only use indent of 4 spaces.      indentation
160:0      error      Only use indent of 4 spaces.      indentation
162:2      error      Only use indent of 4 spaces.      indentation
165:6      error      Only use indent of 8 spaces.      indentation
167:6      error      Only use indent of 8 spaces.      indentation
171:0      error      Only use indent of 4 spaces.      indentation
182:2      error      Only use indent of 4 spaces.      indentation
185:2      error      Only use indent of 4 spaces.      indentation
192:2      error      Only use indent of 4 spaces.      indentation
194:0      error      Only use indent of 4 spaces.      indentation
200:2      error      Only use indent of 4 spaces.      indentation
203:0      error      Only use indent of 4 spaces.      indentation
210:2      error      Only use indent of 4 spaces.      indentation
212:4      warning    Use emit statements for triggering
events.      emit
214:0      error      Only use indent of 4 spaces.      indentation
250:2      error      Only use indent of 4 spaces.      indentation
251:2      error      Only use indent of 4 spaces.      indentation
252:2      error      Only use indent of 4 spaces.      indentation
254:2      error      Only use indent of 4 spaces.      indentation
258:2      error      Only use indent of 4 spaces.      indentation

```

| | | | |
|-------|-------|------------------------------|-------------|
| 262:0 | error | Only use indent of 4 spaces. | indentation |
| 266:2 | error | Only use indent of 4 spaces. | indentation |
| 268:0 | error | Only use indent of 4 spaces. | indentation |
| 270:2 | error | Only use indent of 4 spaces. | indentation |
| 273:0 | error | Only use indent of 4 spaces. | indentation |
| 275:2 | error | Only use indent of 4 spaces. | Indentation |
| 279:0 | error | Only use indent of 4 spaces. | Indentation |

✘ 55 errors, 5 warnings found.