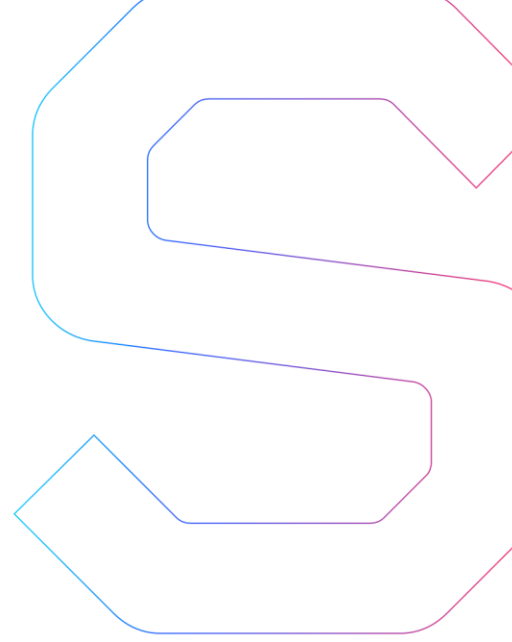


# SmartDec



## Rate3 Smart Contracts Security Analysis

This report is public.

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# Abstract

In this report, we consider the security of the [Rate3](#) project. Our task is to find and describe security issues in the smart contracts of the platform.

## 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 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
  - we run tests and check code coverage
- report
  - we report all the issues found to the developer during the audit process
  - we check the issues fixed by the developer
  - we reflect all the gathered information in the report

## Disclaimer

The audit does not give any warranties on the security of the code. One audit can not 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.

# Checked vulnerabilities

We have scanned Rate3 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 consider Rate3 smart contracts code (rate3-erc20-token-master-v0.5.zip, sha1sum e7e71ab332825d200ec00bdbbcc8a5faf18d21ba), documentation and [whitepaper](#) (5aa10700efcfd2000161ed5d\_Rate3 Whitepaper V1.7.pdf, sha1sum 3581561dbfcb9f397f48912b58ada4c43ba8d37b).

## The latest version of the code

We have performed the check of the fixed vulnerabilities in the latest version of the code (rate3-erc20-token-v0.6.zip, sha1sum 423dd092a7b916613f8b904b129a0e750baa429a) and updated version of the whitepaper (Rate3 Whitepaper V1.7.pdf, sha1sum 7e31fd7618b08021287dfee1435dc54fc3fa59a9).

## Project architecture

For the audit, we have been provided with the following set of solidity files:

- Migrations.sol
- RTEBonusTokenVault.sol
- RTECrowdsale.sol
- RTEToken.sol
- WhitelistedPausableToken.sol

The project contains 212 lines of Solidity code. The files are the part of the truffle project. The project also contains tests, deploy scripts, and several files that are beyond the scope of the audit.

- The project is successfully compiled with `truffle compile` command (see [Compilation output](#) in the [Appendix](#)).
- The project successfully passes the tests (`truffle test` command, see [Tests output](#) in the [Appendix](#)).

## Code logic

**RTEToken** contract implements the ERC20 token logic with some modifications described below. The token parameters:

- name: "Rate3"
- symbol: "RTE"
- decimals: 18
- total supply: 1,000,000,000

Token implements several modifications of ERC20 specifications:

- StandardToken
  - implementation of [ERC20](#) token from [OpenZeppelin](#) contract library (version 1.7.0)
- Ownable
  - implementation of [Ownable](#) contract from [OpenZeppelin](#) contract library (version 1.7.0)
- Pausable
  - implementation of [PausableToken](#) from [OpenZeppelin](#) contract library (version 1.7.0)
  - allows owner to pause and unpause token transfers and approvals
- WhitelistedPausableToken
  - allows addresses listed in whitelist to transfer token when token is paused
  - allows owner to add and remove addresses from whitelist

**RTECrowdsale** contract implements generic crowdsale contract based on [Crowdsale](#) from [OpenZeppelin](#) contract library (version 1.7.0) with some additional features

- AllowanceCrowdsale
  - implementation of [AllowanceCrowdsale](#) from [OpenZeppelin](#) contract library (version 1.7.0)
  - tokens transferred to customers from specified tokenWallet
- WhitelistedCrowdsale
  - implementation of [WhitelistedCrowdsale](#) from [OpenZeppelin](#) contract library (version 1.7.0)
  - allows to buy token only for whitelisted beneficiary addresses
  - allows owner to add and remove addresses from whitelist
- TimedCrowdsale
  - implementation of [TimedCrowdsale](#) from [OpenZeppelin](#) contract library (version 1.7.0)
  - allows to buy tokens only in specified range of time
- FinalizableCrowdsale
  - implementation of [FinalizableCrowdsale](#) from [OpenZeppelin](#) contract library (version 1.7.0)
  - allows owner to finish crowdsale after `closingTime`
- Some custom features
  - The number of bonus tokens that are transferred to buyer depends on time from the beginning of crowdsale:
    - 20% of additional tokens during 1 week
    - 15% of additional tokens during 2 week
    - 10% of additional tokens during 3 week
    - 5% of additional tokens during 4 week
  - All bonus tokens kept in special RTEBonusTokenVault wallet, with some logic of tokens claiming.
  - Bonus tokens divided into two parts in 1/1 proportion
    - Tokens locked until crowdsale ends
    - Tokens locked until specified time in contract creation parameters
  - Total number of tokens sold by token sale is limited by `cap` specified in contract construction.
  - During finalizations of token sale after `closingTime` RTEBonusTokenVault is unlocked.
  - Anyone could claim beneficiary bonus tokens to beneficiary address.

**RTEBonusTokenVault** contract implements wallet that holds bonus tokens and have some features:

- Ownable
  - implementation of [Ownable](#) contract from [OpenZeppelin](#) contract library (version 1.7.0)
  - owner is RTECrowdsale contract
- Some custom features
  - owner (crowdsale contract) controls unlocking and distributing tokens

# 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	Fallback function of contract requires too much gas	1	
	Gas requirement of function is high	43	
	Invoking events without "emit" prefix is deprecated	4	
	Potential Violation of Checks-Effects-Interaction pattern	2	
	Potentially should be constant but is not	7	
	use of "now"	2	
Total Remix		59	
SmartCheck	Dos with revert	4	
	Erc20 approve	1	
	Erc20 transfer should throw	2	
	Gas limit and loops	1	
	No payable fallback	4	
	Pragmas version	1	4



	Reentrancy external call	10	
	Unchecked math	1	
	Redundant check		1
Total SmartCheck		24	5
Solhint	Compiler version must be fixed	1	4
Total Solhint		1	4
<b>Total Overall</b>		<b>84</b>	<b>9</b>

# 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 showed no critical issues.**

## Medium severity issues

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

### Discrepancies with the whitepaper

According to the whitepaper (p.3), token sale implements soft cap:

**Token and token ecosystem:** The exchange ratio is 1 ETH : 8,000 RTE. There is a soft cap of 20,000 ETH and hard cap of 50,000 ETH.

However, current crowdsale contract (RTECrowdsale) does not implement this functionality. These discrepancies were fixed in the latest version of the whitepaper.

### Cap issue

There are incorrect hard cap checks in the code:

- RTECrowdsale.sol, line 122

```
require(allTokensSold.add(_tokenAmount).add(additionalBonusTokens) <= cap);
```

If any transaction makes `allTokensSold` reach the value that is greater than the hard cap, the transaction will be aborted. Thus, `capReached` will return `true` only if `allTokensSold` equals to cap:

- RTECrowdsale.sol, line 68

```
function capReached() public view returns (bool) {
    return allTokensSold >= cap;
}
```

If users are unaware about this issue, it makes hard cap almost impossible to achieve. To implement the hard cap one has to handle the last transaction in a special way, e.g., letting the investor withdraw the remaining tokens.

We highly recommend implementing correct cap check.

Rate3 team reported that they understand issue and will inform users about current state of crowdsale.

## Low severity issues

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

### Pragmas version

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

Example:

```
pragma solidity ^0.4.19; // bad: compiles w 0.4.19 and above
pragma solidity 0.4.19; // good: compiles w 0.4.19 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 — 0.4.21 at the moment of the report.

The issue has been fixed and is not present in the latest version of the code.

### Redundant code

uint256 variables are always positive or zero. There is the redundant check in RTECrowdsale.sol, line 122:

```
require(additionalBonusTokens >= 0);
```

We recommend removing the redundant code to save gas.

The issue has been fixed and is not present in the latest version of the code.

# Conclusion

In this report, we have considered the security of Rate3 smart contracts. We performed our audit according to the [procedure](#) described above.

The initial audit showed no critical issues, but showed several medium and low severity issues. We have discussed the results of the audit with Rate3 team. In case when the developer was aware about the issue and they claimed to inform users about it, we supplied the report with corresponding comment. All the other issues have been fixed by the developer in [the latest version of the code](#).

This analysis was performed by SmartDec.

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# Appendix

## Code coverage

```
-----|-----|-----|-----
--|-----|-----|
File | % Stmts | % Branch | % Funcs | % Lines |Uncovered Lines
|
-----|-----|-----|-----
--|-----|-----|
contracts/ | 95.31 | 73.81 | 88 | 96 | |
RTEBonusTokenVault.sol | 100 | 65 | 100 | 100 | |
RTECrowdsale.sol | 95.83 | 80 | 90 | 96.88 | 68 |
RTEToken.sol | 100 | 100 | 100 | 100 | |
WhitelistedPausableToken.sol | 80 | 100 | 77.78 | 81.82 |
65,69 |
-----|-----|-----|-----
--|-----|-----|
All files | 95.31 | 73.81 | 88 | 96 | |
-----|-----|-----|-----
--|-----|-----|
```

## Compilation output

```
$ truffle compile
Compiling ./contracts/Migrations.sol...
Compiling ./contracts/RTEBonusTokenVault.sol...
Compiling ./contracts/RTECrowdsale.sol...
Compiling ./contracts/RTEToken.sol...
Compiling ./contracts/WhitelistedPausableToken.sol...
Compiling zeppelin-
solidity/contracts/crowdsale/Crowdsale.sol...
Compiling zeppelin-
solidity/contracts/crowdsale/distribution/FinalizableCrowdsale
.sol...
Compiling zeppelin-
solidity/contracts/crowdsale/emission/AllowanceCrowdsale.sol..
.
Compiling zeppelin-
solidity/contracts/crowdsale/validation/TimedCrowdsale.sol...
```

```

Compiling zeppelin-
solidity/contracts/crowdsale/validation/WhitelistedCrowdsale.s
ol...
Compiling zeppelin-
solidity/contracts/lifecycle/Pausable.sol...
Compiling zeppelin-solidity/contracts/math/SafeMath.sol...
Compiling zeppelin-solidity/contracts/ownership/Ownable.sol...
Compiling zeppelin-
solidity/contracts/token/ERC20/BasicToken.sol...
Compiling zeppelin-solidity/contracts/token/ERC20/ERC20.sol...
Compiling zeppelin-
solidity/contracts/token/ERC20/ERC20Basic.sol...
Compiling zeppelin-
solidity/contracts/token/ERC20/SafeERC20.sol...
Compiling zeppelin-
solidity/contracts/token/ERC20/StandardToken.sol...

```

Compilation warnings encountered:

```

zeppelin-solidity/contracts/crowdsale/Crowdsale.sol:112:34:
Warning: Unused function parameter. Remove or comment out the
variable name to silence this warning.
function _postValidatePurchase(address _beneficiary, uint256
_weiAmount) internal {
^-----^
,zeppelin-solidity/contracts/crowdsale/Crowdsale.sol:112:56:
Warning: Unused function parameter. Remove or comment out the
variable name to silence this warning.
function _postValidatePurchase(address _beneficiary, uint256
_weiAmount) internal {
^-----^
,zeppelin-solidity/contracts/crowdsale/Crowdsale.sol:139:35:
Warning: Unused function parameter. Remove or comment out the
variable name to silence this warning.
function _updatePurchasingState(address _beneficiary, uint256
_weiAmount) internal {
^-----^
,zeppelin-solidity/contracts/crowdsale/Crowdsale.sol:139:57:
Warning: Unused function parameter. Remove or comment out the
variable name to silence this warning.
function _updatePurchasingState(address _beneficiary, uint256
_weiAmount) internal {
^-----^
,zeppelin-solidity/contracts/crowdsale/Crowdsale.sol:102:3:
Warning: Function state mutability can be restricted to pure
function _preValidatePurchase(address _beneficiary, uint256
_weiAmount) internal {

```

```

^
Spanning multiple lines.
,zeppelin-solidity/contracts/crowdsale/Crowdsale.sol:112:3:
Warning: Function state mutability can be restricted to pure
function _postValidatePurchase(address _beneficiary, uint256
_weiAmount) internal {
^
Spanning multiple lines.
,zeppelin-solidity/contracts/crowdsale/Crowdsale.sol:139:3:
Warning: Function state mutability can be restricted to pure
function _updatePurchasingState(address _beneficiary, uint256
_weiAmount) internal {
^
Spanning multiple lines.
,zeppelin-
solidity/contracts/crowdsale/distribution/FinalizableCrowdsale
.sol:38:3: Warning: Function state mutability can be
restricted to pure
function finalization() internal {
^
Spanning multiple lines.

Writing artifacts to ./build/contracts

```

## Tests output

```

Compiling ./contracts/Migrations.sol...
Compiling ./contracts/RTEBonusTokenVault.sol...
Compiling ./contracts/RTECrowdsale.sol...
Compiling ./contracts/RTEToken.sol...
Compiling ./contracts/WhitelistedPausableToken.sol...
Compiling zeppelin-
solidity/contracts/crowdsale/Crowdsale.sol...
Compiling zeppelin-
solidity/contracts/crowdsale/distribution/FinalizableCrowdsale
.sol...
Compiling zeppelin-
solidity/contracts/crowdsale/emission/AllowanceCrowdsale.sol..
.
Compiling zeppelin-
solidity/contracts/crowdsale/validation/TimedCrowdsale.sol...
Compiling zeppelin-
solidity/contracts/crowdsale/validation/WhitelistedCrowdsale.s
ol...

```

```

Compiling zeppelin-
solidity/contracts/lifecycle/Pausable.sol...
Compiling zeppelin-solidity/contracts/math/SafeMath.sol...
Compiling zeppelin-solidity/contracts/ownership/Ownable.sol...
Compiling zeppelin-
solidity/contracts/token/ERC20/BasicToken.sol...
Compiling zeppelin-solidity/contracts/token/ERC20/ERC20.sol...
Compiling zeppelin-
solidity/contracts/token/ERC20/ERC20Basic.sol...
Compiling zeppelin-
solidity/contracts/token/ERC20/SafeERC20.sol...
Compiling zeppelin-
solidity/contracts/token/ERC20/StandardToken.sol...

```

Compilation warnings encountered:

```

zeppelin-solidity/contracts/crowdsale/Crowdsale.sol:112:34:
Warning: Unused function parameter. Remove or comment out the
variable name to silence this warning.
    function _postValidatePurchase(address _beneficiary, uint256
_weiAmount) internal {
                                ^-----^
,zeppelin-solidity/contracts/crowdsale/Crowdsale.sol:112:56:
Warning: Unused function parameter. Remove or comment out the
variable name to silence this warning.
    function _postValidatePurchase(address _beneficiary, uint256
_weiAmount) internal {
                                ^-----
-----^
,zeppelin-solidity/contracts/crowdsale/Crowdsale.sol:139:35:
Warning: Unused function parameter. Remove or comment out the
variable name to silence this warning.
    function _updatePurchasingState(address _beneficiary,
uint256 _weiAmount) internal {
                                ^-----^
,zeppelin-solidity/contracts/crowdsale/Crowdsale.sol:139:57:
Warning: Unused function parameter. Remove or comment out the
variable name to silence this warning.
    function _updatePurchasingState(address _beneficiary,
uint256 _weiAmount) internal {
                                ^-----
-----^
,zeppelin-solidity/contracts/crowdsale/Crowdsale.sol:102:3:
Warning: Function state mutability can be restricted to pure
    function _preValidatePurchase(address _beneficiary, uint256
_weiAmount) internal {
    ^

```



```

Spanning multiple lines.
,zeppelin-solidity/contracts/crowdsale/Crowdsale.sol:112:3:
Warning: Function state mutability can be restricted to pure
    function _postValidatePurchase(address _beneficiary, uint256
    _weiAmount) internal {
    ^

Spanning multiple lines.
,zeppelin-solidity/contracts/crowdsale/Crowdsale.sol:139:3:
Warning: Function state mutability can be restricted to pure
    function _updatePurchasingState(address _beneficiary,
uint256 _weiAmount) internal {
    ^

Spanning multiple lines.
,zeppelin-
solidity/contracts/crowdsale/distribution/FinalizableCrowdsale
.sol:38:3: Warning: Function state mutability can be
restricted to pure
    function finalization() internal {
    ^

Spanning multiple lines.

Writing artifacts to ./build/contracts

```

## Solhint output

```

solhint rate3-erc20-token-master/contracts/*.sol

rate3-erc20-token-master/contracts/Migrations.sol
  1:17  warning  Compiler version must be fixed
compiler-fixed
  3:1   error    Definition must be surrounded with two blank
line indent  two-lines-top-level-separator
  4:3   error    Expected indentation of 4 spaces but found 2
indent
  5:3   error    Expected indentation of 4 spaces but found 2
indent
  5:15  error    Variable name must be in mixedCase
var-name-mixedcase
  7:3   error    Expected indentation of 4 spaces but found 2
indent
  8:5   error    Expected indentation of 8 spaces but found 4
indent
  9:3   error    Expected indentation of 4 spaces but found 2
indent

```

```

11:3    error    Expected indentation of 4 spaces but found 2
indent
12:5    error    Expected indentation of 8 spaces but found 4
indent
13:3    error    Expected indentation of 4 spaces but found 2
indent
15:3    error    Expected indentation of 4 spaces but found 2
indent
16:5    error    Expected indentation of 8 spaces but found 4
indent
17:3    error    Expected indentation of 4 spaces but found 2
indent
19:3    error    Expected indentation of 4 spaces but found 2
indent
19:28   error    Function param name must be in mixedCase
func-param-name-mixedcase
20:5    error    Expected indentation of 8 spaces but found 4
indent
21:5    error    Expected indentation of 8 spaces but found 4
indent
22:3    error    Expected indentation of 4 spaces but found 2
indent

```

rate3-erc20-token-master/contracts/RTEBonusTokenVault.sol

```

1:17   warning  Compiler version must be fixed
compiler-fixed
12:1    error    Definition must be surrounded with two
blank line indent    two-lines-top-level-separator
13:3    error    Expected indentation of 4 spaces but found
2          indent
14:3    error    Expected indentation of 4 spaces but found
2          indent
17:3    error    Expected indentation of 4 spaces but found
2          indent
20:3    error    Expected indentation of 4 spaces but found
2          indent
22:3    error    Expected indentation of 4 spaces but found
2          indent
25:3    error    Expected indentation of 4 spaces but found
2          indent
27:3    error    Expected indentation of 4 spaces but found
2          indent
34:3    error    Expected indentation of 4 spaces but found
2          indent
41:3    error    Expected indentation of 4 spaces but found
2          indent

```

```

    43:3   error    Expected indentation of 4 spaces but found
2         indent
    46:3   error    Indentation is incorrect
indent
    48:3   error    Indentation is incorrect
indent
    49:34  warning  Avoid to make time-based decisions in your
business logic not-rely-on-time
    49:5   error    Expected indentation of 6 spaces but found
4         indent
    51:5   error    Expected indentation of 6 spaces but found
4         indent
    52:5   error    Expected indentation of 6 spaces but found
4         indent
    53:5   error    Expected indentation of 6 spaces but found
4         indent
    54:3   error    Indentation is incorrect
indent
    59:3   error    Expected indentation of 4 spaces but found
2         indent
    60:5   error    Expected indentation of 8 spaces but found
4         indent
    61:5   error    Expected indentation of 8 spaces but found
4         indent
    62:3   error    Expected indentation of 4 spaces but found
2         indent
    71:3   error    Expected indentation of 4 spaces but found
2         indent
    72:5   error    Expected indentation of 8 spaces but found
4         indent
    74:5   error    Expected indentation of 8 spaces but found
4         indent
    75:5   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
    80:5   error    Expected indentation of 8 spaces but found
4         indent
    81:3   error    Expected indentation of 4 spaces but found
2         indent
    87:3   error    Expected indentation of 4 spaces but found
2         indent
    90:5   error    Expected indentation of 8 spaces but found
4         indent

```

```

    92:5    error    Expected indentation of 8 spaces but found
4          indent
    93:5    error    Expected indentation of 8 spaces but found
4          indent
    95:5    error    Expected indentation of 8 spaces but found
4          indent
    96:5    error    Expected indentation of 8 spaces but found
4          indent
    99:5    error    Expected indentation of 8 spaces but found
4          indent
   101:5    error    Expected indentation of 8 spaces but found
4          indent
   103:5    error    Expected indentation of 8 spaces but found
4          indent
   104:3    error    Expected indentation of 4 spaces but found
2          indent
   110:3    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
   114:13   warning  Avoid to make time-based decisions in your
business logic not-rely-on-time
   116:5    error    Expected indentation of 8 spaces but found
4          indent
   117:5    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
   123:5    error    Expected indentation of 8 spaces but found
4          indent
   125:5    error    Expected indentation of 8 spaces but found
4          indent
   127:5    error    Expected indentation of 8 spaces but found
4          indent
   128:3    error    Expected indentation of 4 spaces but found
2          indent

rate3-erc20-token-master/contracts/RTECrowdsale.sol
    1:17   warning  Compiler version must be fixed
compiler-fixed
    15:1   error    Definition must be surrounded with two
blank line indent                two-lines-top-level-
separator

```

2	16:3	error	Expected indentation of 4 spaces but found indent
	18:27	error	Constant name must be in capitalized const-name-
	SNAKE_CASE		
	snakecase		
2	18:3	error	Expected indentation of 4 spaces but found indent
2	20:3	error	Expected indentation of 4 spaces but found indent
2	22:3	error	Expected indentation of 4 spaces but found indent
2	24:3	error	Expected indentation of 4 spaces but found indent
2	26:3	error	Expected indentation of 4 spaces but found indent
2	28:3	error	Expected indentation of 4 spaces but found indent
2	41:3	error	Expected indentation of 4 spaces but found indent
	50:3	error	Indentation is incorrect
	51:5	error	Visibility modifier must be first in list of modifiers visibility-modifier-order
	55:3	error	Indentation is incorrect
4	56:5	error	Expected indentation of 6 spaces but found indent
4	57:5	error	Expected indentation of 6 spaces but found indent
4	59:5	error	Expected indentation of 6 spaces but found indent
4	60:5	error	Expected indentation of 6 spaces but found indent
	61:3	error	Indentation is incorrect
2	67:3	error	Expected indentation of 4 spaces but found indent
4	68:5	error	Expected indentation of 8 spaces but found indent
2	69:3	error	Expected indentation of 4 spaces but found indent
2	75:3	error	Expected indentation of 4 spaces but found indent
4	77:5	error	Expected indentation of 8 spaces but found indent

6	78:7	error	Expected indentation of 12 spaces but found indent
4	79:5	error	Expected indentation of 8 spaces but found indent
4	82:5	error	Expected indentation of 8 spaces but found indent
6	83:7	error	Expected indentation of 12 spaces but found indent
4	84:5	error	Expected indentation of 8 spaces but found indent
4	87:5	error	Expected indentation of 8 spaces but found indent
2	88:3	error	Expected indentation of 4 spaces but found indent
2	93:3	error	Expected indentation of 4 spaces but found indent
	93:3	error	Function order is incorrect, public function can not go after internal function func-order
4	94:5	error	Expected indentation of 8 spaces but found indent
2	95:3	error	Expected indentation of 4 spaces but found indent
2	102:3	error	Expected indentation of 4 spaces but found indent
4	103:5	error	Expected indentation of 8 spaces but found indent
4	104:5	error	Expected indentation of 8 spaces but found indent
2	105:3	error	Expected indentation of 4 spaces but found indent
2	112:3	error	Expected indentation of 4 spaces but found indent
4	114:5	error	Expected indentation of 8 spaces but found indent
4	115:5	error	Expected indentation of 8 spaces but found indent
4	116:5	error	Expected indentation of 8 spaces but found indent
	117:7	error	Indentation is incorrect indent
4	122:5	error	Expected indentation of 8 spaces but found indent
4	123:5	error	Expected indentation of 8 spaces but found indent
4	126:5	error	Expected indentation of 8 spaces but found indent

127:5	error	Expected indentation of 8 spaces but found
4		indent
129:5	error	Expected indentation of 8 spaces but found
4		indent
131:7	error	Expected indentation of 12 spaces but found
6		indent
132:7	error	Expected indentation of 12 spaces but found
6		indent
133:7	error	Expected indentation of 12 spaces but found
6		indent
134:5	error	Expected indentation of 8 spaces but found
4		indent
135:3	error	Expected indentation of 4 spaces but found
2		indent
138:2	error	Line length must be no more than 120 but
current length is 121		max-line-length
142:3	error	Expected indentation of 4 spaces but found
2		indent
144:5	error	Expected indentation of 8 spaces but found
4		indent
145:3	error	Expected indentation of 4 spaces but found
2		indent
151:3	error	Expected indentation of 4 spaces but found
2		indent
151:3	error	Function order is incorrect, public
function can not go after internal function		func-order
152:5	error	Expected indentation of 8 spaces but found
4		indent
153:5	error	Expected indentation of 8 spaces but found
4		indent
154:3	error	Expected indentation of 4 spaces but found
2		indent
160:3	error	Expected indentation of 4 spaces but found
2		indent
160:3	error	Function order is incorrect, public
function can not go after internal function		func-order
161:5	error	Expected indentation of 8 spaces but found
4		indent
162:5	error	Expected indentation of 8 spaces but found
4		indent
163:3	error	Expected indentation of 4 spaces but found
2		indent
168:3	error	Expected indentation of 4 spaces but found
2		indent
170:5	error	Expected indentation of 8 spaces but found
4		indent

```

173:5    error    Expected indentation of 8 spaces but found
4                                indent
175:5    error    Expected indentation of 8 spaces but found
4                                indent
176:3    error    Expected indentation of 4 spaces but found
2                                indent

rate3-erc20-token-master/contracts/RTEToken.sol
  1:17   warning  Compiler version must be fixed
compiler-fixed
 10:1    error    Definition must be surrounded with two blank
line indent  two-lines-top-level-separator
 11:3    error    Expected indentation of 4 spaces but found 2
indent
 11:26   error    Constant name must be in capitalized
SNAKE_CASE    const-name-snakecase
 12:3    error    Expected indentation of 4 spaces but found 2
indent
 12:26   error    Constant name must be in capitalized
SNAKE_CASE    const-name-snakecase
 13:3    error    Expected indentation of 4 spaces but found 2
indent
 13:25   error    Constant name must be in capitalized
SNAKE_CASE    const-name-snakecase
 17:3    error    Expected indentation of 4 spaces but found 2
indent
 24:3    error    Expected indentation of 4 spaces but found 2
indent
 26:5    error    Expected indentation of 8 spaces but found 4
indent
 29:5    error    Expected indentation of 8 spaces but found 4
indent
 30:5    error    Expected indentation of 8 spaces but found 4
indent
 31:3    error    Expected indentation of 4 spaces but found 2
indent

rate3-erc20-token-
master/contracts/WhitelistedPausableToken.sol
  1:17   warning  Compiler version must be fixed
compiler-fixed
 11:1    error    Definition must be surrounded with two blank
line indent  two-lines-top-level-separator
 13:3    error    Expected indentation of 4 spaces but found 2
indent
 20:3    error    Expected indentation of 4 spaces but found 2
indent

```



21:5	error	Expected indentation of 8 spaces but found 4
indent		
22:5	error	Expected indentation of 8 spaces but found 4
indent		
23:3	error	Expected indentation of 4 spaces but found 2
indent		
29:3	error	Expected indentation of 4 spaces but found 2
indent		
30:5	error	Expected indentation of 8 spaces but found 4
indent		
31:3	error	Expected indentation of 4 spaces but found 2
indent		
37:3	error	Expected indentation of 4 spaces but found 2
indent		
38:5	error	Expected indentation of 8 spaces but found 4
indent		
39:7	error	Expected indentation of 12 spaces but found
6		indent
40:5	error	Expected indentation of 8 spaces but found 4
indent		
41:3	error	Expected indentation of 4 spaces but found 2
indent		
47:3	error	Expected indentation of 4 spaces but found 2
indent		
48:5	error	Expected indentation of 8 spaces but found 4
indent		
49:3	error	Expected indentation of 4 spaces but found 2
indent		
52:3	error	Expected indentation of 4 spaces but found 2
indent		
53:5	error	Expected indentation of 8 spaces but found 4
indent		
54:3	error	Expected indentation of 4 spaces but found 2
indent		
56:3	error	Expected indentation of 4 spaces but found 2
indent		
56:2	error	Line length must be no more than 120 but
current length is		130 max-line-length
57:5	error	Expected indentation of 8 spaces but found 4
indent		
58:3	error	Expected indentation of 4 spaces but found 2
indent		
60:3	error	Expected indentation of 4 spaces but found 2
indent		
61:5	error	Expected indentation of 8 spaces but found 4
indent		

```
62:3    error    Expected indentation of 4 spaces but found 2
indent
64:3    error    Expected indentation of 4 spaces but found 2
indent
64:2    error    Line length must be no more than 120 but
current length is 134  max-line-length
65:5    error    Expected indentation of 8 spaces but found 4
indent
66:3    error    Expected indentation of 4 spaces but found 2
indent
68:2    error    Line length must be no more than 120 but
current length is 139  max-line-length
68:3    error    Expected indentation of 4 spaces but found 2
indent
69:5    error    Expected indentation of 8 spaces but found 4
indent
70:3    error    Expected indentation of 4 spaces but found 2
indent
```

✘ 196 problems (189 errors, 7 warnings)