0.7

iLayer 0.7 Process Quality Review

Score: 3%

Overview

This is an iLayer Process Quality Review completed on 20/09/2021. It was performed using the Process Review process (version 0.7.3) and is documented here. The review was performed by Nick of DeFiSafety. Check out our Telegram.

The final score of the review is 3**%**, a **FAIL**. The breakdown of the scoring is in Scoring Appendix. For our purposes, a pass is **70%.**

Summary of the Process

Very simply, the review looks for the following declarations from the developer's site. With these declarations, it is reasonable to trust the smart contracts.

- **Here are my smart contracts on the blockchain**
- **Here is the documentation that explains what my smart contracts do**
- **Here are the tests I ran to verify my smart contract**
- **Here are the audit(s) performed on my code by third party experts**
- **Here are the admin controls and strategies**

Disclaimer

views to change. All information is subject to possible correction. Information may quickly become unreliable for various reasons, including changes in market conditions or economic circumstances.

Chain

This section indicates the blockchain used by this protocol.

> ✓ **Chain:** Binance Smart Chain

Guidance:

Ethereum
Binance Smart Chain
Polygon
Avalanche
Terra

Code and Team

This section looks at the code deployed on the Mainnet that gets reviewed and its corresponding software repository. The document explaining these questions is here. This review will answer the following questions:

1) Are the executing code addresses readily available? (%)
2) Is the code actively being used? (%)
3) Is there a public software repository? (Y/N)
4) Is there a development history visible? (%)
5) Is the team public (not anonymous)? (Y/N)

1) Are the executing code addresses readily available? (%)

> ⚠ **Answer:** 0%

The executing code addresses were difficult to find and were not provided upon request. Only two executing contract addresses could be found, as indicated in the Appendix.

Guidance:

100% Clearly labelled and on website, docs or repo, quick to find
70% Clearly labelled and on website, docs or repo but takes a bit of looking

40%	Addresses in mainnet.json, in discord or sub graph, etc
20%	Address found but labeling not clear or easy to find
0%	Executing addresses could not be found

How to improve this score:

Make the Ethereum addresses of the smart contract utilized by your application available on either your website or your GitHub (in the README for instance). Ensure the addresses is up to date. This is a very important question towards the final score.

2) Is the code actively being used? (%)

> ⓘ **Answer:** 70%

Activity is over 10 transactions a week on contract , as indicated in the Appendix.

Guidance:

100%	More than 10 transactions a day
70%	More than 10 transactions a week
40%	More than 10 transactions a month
10%	Less than 10 transactions a month
0%	No activity

3) Is there a public software repository? (Y/N)

> ⚠ **Answer:** No

There is no public software repository.

GitHub:

Is there a public software repository with the code at a minimum, but also normally test and scripts. Even if the repository was created just to hold the files and has just 1 transaction, it gets a **"Yes"**. For teams with private repositories, this answer is **"No"**.

4) Is there a development history visible? (%)

> ⚠ **Answer:** 0%

There is no public software repository, so no development history is visible.

This metric checks if the software repository demonstrates a strong steady history. This is normally

demonstrated by commits, branches and releases in a software repository. A healthy history demonstrates a history of more than a month (at a minimum).

Guidance:

100% Any one of 100+ commits, 10+branches
70% Any one of 70+ commits, 7+branches
50% Any one of 50+ commits, 5+branches
30% Any one of 30+ commits, 3+branches
0% Less than 2 branches or less than 30 commits

How to improve this score:

Continue to test and perform other verification activities after deployment, including routine maintenance updating to new releases of testing and deployment tools. A public development history indicates clearly to the public the level of continued investment and activity by the developers on the application. This gives a level of security and faith in the application.

5) Is the team public (not anonymous)? (Y/N)

> ⚠ **Answer:** No

The team's identity could not be found. Aside from the pseudonym "Richie Van Gogh", who appears to have been contracted for website design, the iLayer team is anonymous.

For a **"Yes"** in this question, the real names of some team members must be public on the website or other documentation (LinkedIn, etc). If the team is anonymous, then this question is a **"No"**.

Documentation

This section looks at the software documentation. The document explaining these questions is here.

Required questions are;

6) Is there a whitepaper? (Y/N)
7) Are the basic software functions documented? (Y/N)
8) Does the software function documentation fully (100%) cover the deployed contracts? (%)
9) Are there sufficiently detailed comments for all functions within the deployed contract code (%)
10) Is it possible to trace from software documentation to the implementation in code (%)

6) Is there a whitepaper? (Y/N)

> ✓ **Answer:** Yes

Location: https://www.ilayer.io/echophep/2021/07/iLayer.pdf

7) Are the basic software functions documented? (Y/N)

> ⚠ **Answer:** No

The basic software functions are documented in the whitepaper.

8) Does the software function documentation fully (100%) cover the deployed contracts? (%)

> ⚠ **Answer:** 0%

No deployed contracts are detailed, making comparison impossible.

Guidance:

100% All contracts and functions documented
80% Only the major functions documented
79-1% Estimate of the level of software documentation
0% No software documentation

How to improve this score:

This score can be improved by adding content to the software functions document such that it comprehensively covers the requirements. For guidance, refer to the SecurEth System Description Document. Using tools that aid traceability detection will help.

9) Are there sufficiently detailed comments for all functions within the deployed contract code (%)

> ⚠ **Answer:** 0%

There is no public software repository, making comment analysis impossible.

Code examples are in the Appendix. As per the SLOC, there is 0% commenting to code (CtC).

The Comments to Code (CtC) ratio is the primary metric for this score.

Guidance:

100% CtC > 100 Useful comments consistently on all code
90-70% CtC > 70 Useful comment on most code
60-20% CtC > 20 Some useful commenting
0% CtC < 20 No useful commenting

How to improve this score

This score can improve by adding comments to the deployed code such that it comprehensively covers the code. For guidance, refer to the SecurEth Software Requirements.

10) Is it possible to trace from software documentation to the implementation in code (%)

> ⚠ **Answer:** 0%

There is no project documentation aside from a non-technical whitepaper, making traceability or even comparison impossible.

Guidance:

100%	Clear explicit traceability between code and documentation at a requirement level for all code
60%	Clear association between code and documents via non explicit traceability
40%	Documentation lists all the functions and describes their functions
0%	No connection between documentation and code

How to improve this score:

This score can improve by adding traceability from documentation to code such that it is clear where each outlined function is coded in the source code. For reference, check the SecurEth guidelines on traceability.

Testing

This section looks at the software testing available. It is explained in this document. This section answers the following questions;

11) Full test suite (Covers all the deployed code) (%)
12) Code coverage (Covers all the deployed lines of code, or explains misses) (%)
13) Scripts and instructions to run the tests (Y/N)
14) Report of the results (%)
15) Formal Verification test done (%)
16) Stress Testing environment (%)

11) Is there a Full test suite? (%)

> ⚠ **Answer:** 0%

There is no public software repository, making any test to code metric impossible to calculate. The code

cited is from the BSC scan of the token contract address (under "Read Contract").

Code examples are in the Appendix. As per the SLOC, there is 0% testing to code (TtC).

This score is guided by the Test to Code ratio (TtC). Generally a good test to code ratio is over 100%. However the reviewers best judgement is the final deciding factor.

Guidance:

100%	TtC > 120% Both unit and system test visible
80%	TtC > 80% Both unit and system test visible
40%	TtC < 80% Some tests visible
0%	No tests obvious

How to improve this score:

This score can improved by adding tests to fully cover the code. Document what is covered by traceability or test results in the software repository.

12) Code coverage (Covers all the deployed lines of code, or explains misses) (%)

> ⚠ **Answer:** 0%

No code coverage testing could be found.

Guidance:

100%	Documented full coverage
99-51%	Value of test coverage from documented results
50%	No indication of code coverage but clearly there is a reasonably complete set of tests
30%	Some tests evident but not complete
0%	No test for coverage seen

How to improve this score:

This score can improved by adding tests that achieve full code coverage. A clear report and scripts in the software repository will guarantee a high score.

13) Scripts and instructions to run the tests (Y/N)

> ⚠ **Answer:** No

There are no documents nor public repository meaning there are no available testing scripts or instructions on how to run them.

How to improve this score:

Add the scripts to the repository and ensure they work. Ask an outsider to create the environment and run the tests. Improve the scripts and docs based on their feedback.

14) Report of the results (%)

> ⚠ **Answer:** 0%

No test report is evident.

Guidance:

100% Detailed test report as described below
70% GitHub code coverage report visible
0% No test report evident

How to improve this score

Add a report with the results. The test scripts should generate the report or elements of it.

15) Formal Verification test done (%)

> ⚠ **Answer:** 0%

There is no formal verification.

16) Stress Testing environment (%)

> ⚠ **Answer:** 0%

There is no evidence of stress testing.

Security

This section looks at the 3rd party software audits done. It is explained in this document. This section answers the following questions;

17) Did 3rd Party audits take place? (%)
18) Is the bounty value acceptably high?

17) Did 3rd Party audits take place? (%)

> ⚠ **Answer:** 0%

No audits have taken place, and there is no public repository.

Guidance:

100% Multiple Audits performed before deployment and results public and implemented or not required
90% Single audit performed before deployment and results public and implemented or not required
70% Audit(s) performed after deployment and no changes required. Audit report is public

50% Audit(s) performed after deployment and changes needed but not implemented
20% No audit performed
0% Audit Performed after deployment, existence is public, report is not public and no improvements deployed OR smart contract address' not found, (where question 1 is 0%)

Deduct 25% if code is in a private repo and no note from auditors that audit is applicable to deployed code

18) Is the bounty value acceptably high (%)

> ⚠ **Answer:** 0%

There is no bug bounty program.

Guidance:

100% Bounty is 10% TVL or at least $1M AND active program (see below)
90% Bounty is 5% TVL or at least 500k AND active program
80% Bounty is 5% TVL or at least 500k
70% Bounty is 100k or over AND active program
60% Bounty is 100k or over
50% Bounty is 50k or over AND active program
40% Bounty is 50k or over
20% Bug bounty program bounty is less than 50k
0% No bug bounty program offered

An active program means that a third party (such as Immunefi) is actively driving hackers to the site. An inactive program would be static mentions on the docs.

Access Controls

This section covers the documentation of special access controls for a DeFi protocol. The admin access controls are the contracts that allow updating contracts or coefficients in the protocol. Since these contracts can allow the protocol admins to "change the rules", complete disclosure of capabilities is vital for user's transparency. It is explained in this document. The questions this section asks are as follow;

19) Can a user clearly and quickly find the status of the admin controls?
20) Is the information clear and complete?
21) Is the information in non-technical terms that pertain to the investments?
22) Is there Pause Control documentation including records of tests?

19) Can a user clearly and quickly find the status of the access controls (%)

> ⚠ **Answer:** 0%

No admin control information could be found.

Guidance:

100%	Clearly labelled and on website, docs or repo, quick to find
70%	Clearly labelled and on website, docs or repo but takes a bit of looking
40%	Access control docs in multiple places and not well labelled
20%	Access control docs in multiple places and not labelled
0%	Admin Control information could not be found

20) Is the information clear and complete (%)

> ⚠ **Answer:** 0%

There is no access control information.

Guidance:

All the contracts are immutable -- 100% OR

a) All contracts are clearly labelled as upgradeable (or not) -- 30% AND
b) The type of ownership is clearly indicated (OnlyOwner / MultiSig / Defined Roles) -- 30% AND
c) The capabilities for change in the contracts are described -- 30%

How to improve this score:

Create a document that covers the items described above. An example is enclosed.

21) Is the information in non-technical terms that pertain to the investments (%)

> ⚠

⚠ **Answer:** 0%

No admin control information could be found.

Guidance:

100%	All the contracts are immutable
90%	Description relates to investments safety and updates in clear, complete non-software l language
30%	Description all in software specific language
0%	No admin control information could not be found

How to improve this score:

Create a document that covers the items described above in plain language that investors can understand. An example is enclosed.

22) Is there Pause Control documentation including records of tests (%)

⚠ **Answer:** 0%

There is no pause control information.

Guidance:

100%	All the contracts are immutable or no pause control needed and this is explained OR
100%	Pause control(s) are clearly documented and there is records of at least one test within 3 months
80%	Pause control(s) explained clearly but no evidence of regular tests
40%	Pause controls mentioned with no detail on capability or tests
0%	Pause control not documented or explained

How to improve this score**:**

Create a document that covers the items described above in plain language that investors can understand. An example is enclosed.

Appendices

Author Details

The author of this review is Rex of DeFi Safety.

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I started with Ethereum just before the DAO and that was a wonderful education. It showed the importance of code quality. The second Parity hack also showed the importance of good process. Here my aviation background offers some value. Aerospace knows how to make reliable code using quality processes.

I was coaxed to go to EthDenver 2018 and there I started SecuEth.org with Bryant and Roman. We created guidelines on good processes for blockchain code development. We got EthFoundation funding to assist in their development.

Process Quality Reviews are an extension of the SecurEth guidelines that will further increase the quality processes in Solidity and Vyper development.

DeFiSafety is my full time gig and we are working on funding vehicles for a permanent staff.

Scoring Appendix

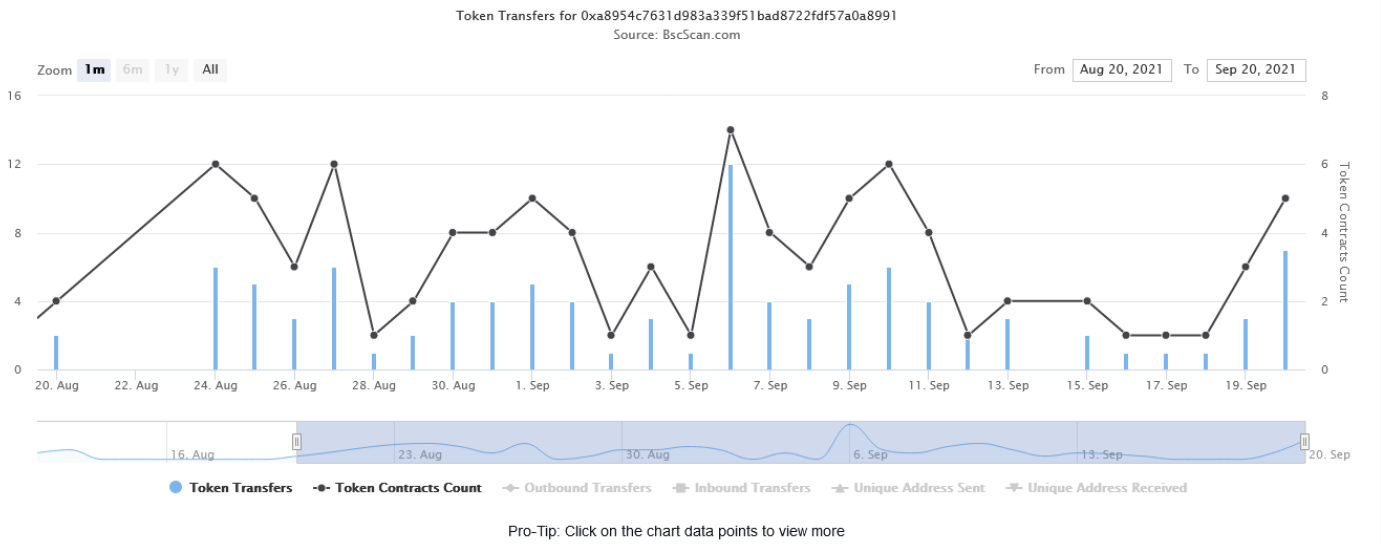
	Total	iLayer	
PQ Audit Scoring Matrix (v0.7)	**Points**	**Answer**	**Points**
Total	**260**		8.5
Code and Team			**3%**
1) Are the executing code addresses readily available? (%)	**20**	0%	0
2) Is the code actively being used? (%)	**5**	70%	3.5
3) Is there a public software repository? (Y/N)	**5**	N	0
4) Is there a development history visible? (%)	**5**	0%	0
5) Is the team public (not anonymous)? (Y/N)	**15**	N	0
Code Documentation			
6) Is there a whitepaper? (Y/N)	**5**	Y	5
7) Are the basic software functions documented? (Y/N)	**10**	N	0
8) Does the software function documentation fully (100%) co	**15**	0%	0
9) Are there sufficiently detailed comments for all functions w	**5**	0%	0
10) Is it possible to trace from software documentation to the	**10**	0%	0
Testing			
11) Full test suite (Covers all the deployed code) (%)	**20**	0%	0
12) Code coverage (Covers all the deployed lines of code, or ex	**5**	0%	0
13) Scripts and instructions to run the tests? (Y/N)	**5**	N	0
14) Report of the results (%)	**10**	0%	0
15) Formal Verification test done (%)	**5**	0%	0
16) Stress Testing environment (%)	**5**	0%	0
Security			
17) Did 3rd Party audits take place? (%)	**70**	0%	0
18) Is the bug bounty acceptable high? (%)	**10**	0%	0
Access Controls			
19) Can a user clearly and quickly find the status of the admin	**5**	0%	0
20) Is the information clear and complete	**10**	0%	0
21) Is the information in non-technical terms	**10**	0%	0
22) Is there Pause Control documentation including records of	**10**	0%	0
Section Scoring			
Code and Team	50	7%	
Documentation	45	11%	
Testing	50	0%	

Security	80	0%
Access Controls	35	0%

Executing Code Appendix

The token contract address 0xE540980f909873370bBE9C19Db7c3B5ba4DEF701 and the "iLayer deployer" (0xa8954C7631d983A339f51Bad8722fdF57a0a8991) were the only executing codes that could be found.

Code Used Appendix



Example Code Appendix

```
abstract contract Context {
    function _msgSender() internal view virtual returns (address payable) {
        return payable(msg.sender);
    }

    function _msgData() internal view virtual returns (bytes memory) {
        this; // silence state mutability warning without generating bytecode - see https:/
        return msg.data;
    }
}


interface IERC20 {

    function totalSupply() external view returns (uint256);
    function balanceOf(address account) external view returns (uint256);
    function transfer(address recipient, uint256 amount) external returns (bool);
    function allowance(address owner, address spender) external view returns (uint256);
    function approve(address spender, uint256 amount) external returns (bool);
    function transferFrom(address sender, address recipient, uint256 amount) external retu
    event Transfer(address indexed from, address indexed to, uint256 value);
```

```
22      event Approval(address indexed owner, address indexed spender, uint256 value);
23
24
25  }
26
27  library SafeMath {
28
29      function add(uint256 a, uint256 b) internal pure returns (uint256) {
30          uint256 c = a + b;
31          require(c >= a, "SafeMath: addition overflow");
32
33          return c;
34      }
35
36      function sub(uint256 a, uint256 b) internal pure returns (uint256) {
37          return sub(a, b, "SafeMath: subtraction overflow");
38      }
39
40      function sub(uint256 a, uint256 b, string memory errorMessage) internal pure returns (u
41          require(b <= a, errorMessage);
42          uint256 c = a - b;
43
44          return c;
45      }
46
47      function mul(uint256 a, uint256 b) internal pure returns (uint256) {
48          if (a == 0) {
49              return 0;
50          }
51
52          uint256 c = a * b;
53          require(c / a == b, "SafeMath: multiplication overflow");
54
55          return c;
56      }
57
58
59      function div(uint256 a, uint256 b) internal pure returns (uint256) {
60          return div(a, b, "SafeMath: division by zero");
61      }
62
63      function div(uint256 a, uint256 b, string memory errorMessage) internal pure returns (u
64          require(b > 0, errorMessage);
65          uint256 c = a / b;
66          // assert(a == b * c + a % b); // There is no case in which this doesn't hold
67
68          return c;
69      }
70
71      function mod(uint256 a, uint256 b) internal pure returns (uint256) {
72          return mod(a, b, "SafeMath: modulo by zero");
73      }
74
```

```
    function mod(uint256 a, uint256 b, string memory errorMessage) internal pure returns (u
        require(b != 0, errorMessage);
        return a % b;
    }
}

library Address {

    function isContract(address account) internal view returns (bool) {
        // According to EIP-1052, 0x0 is the value returned for not-yet created accounts
        // and 0xc5d2460186f7233c927e7db2dcc703c0e500b653ca82273b7bfad8045d85a470 is returr
        // for accounts without code, i.e. `keccak256('')`
        bytes32 codehash;
        bytes32 accountHash = 0xc5d2460186f7233c927e7db2dcc703c0e500b653ca82273b7bfad8045d8
        // solhint-disable-next-line no-inline-assembly
        assembly { codehash := extcodehash(account) }
        return (codehash != accountHash && codehash != 0x0);
    }

    function sendValue(address payable recipient, uint256 amount) internal {
        require(address(this).balance >= amount, "Address: insufficient balance");

        // solhint-disable-next-line avoid-low-level-calls, avoid-call-value
        (bool success, ) = recipient.call{ value: amount }("");
        require(success, "Address: unable to send value, recipient may have reverted");
    }


    function functionCall(address target, bytes memory data) internal returns (bytes memory
      return functionCall(target, data, "Address: low-level call failed");
    }

    function functionCall(address target, bytes memory data, string memory errorMessage) ir
        return _functionCallWithValue(target, data, 0, errorMessage);
    }

    function functionCallWithValue(address target, bytes memory data, uint256 value) interr
        return functionCallWithValue(target, data, value, "Address: low-level call with val
    }

    function functionCallWithValue(address target, bytes memory data, uint256 value, string
        require(address(this).balance >= value, "Address: insufficient balance for call");
        return _functionCallWithValue(target, data, value, errorMessage);
    }

    function _functionCallWithValue(address target, bytes memory data, uint256 weiValue, st
        require(isContract(target), "Address: call to non-contract");

        (bool success, bytes memory returndata) = target.call{ value: weiValue }(data);
        if (success) {
            return returndata;
        } else {

```

```
            if (returndata.length > 0) {
                assembly {
                    let returndata_size := mload(returndata)
                    revert(add(32, returndata), returndata_size)
                }
            } else {
                revert(errorMessage);
            }
        }
    }
}

contract Ownable is Context {
    address private _owner;
    address private _previousOwner;
    uint256 private _lockTime;

    event OwnershipTransferred(address indexed previousOwner, address indexed newOwner);

    constructor () {
        address msgSender = _msgSender();
        _owner = msgSender;
        emit OwnershipTransferred(address(0), msgSender);
    }

    function owner() public view returns (address) {
        return _owner;
    }

    modifier onlyOwner() {
        require(_owner == _msgSender(), "Ownable: caller is not the owner");
        _;
    }

    function renounceOwnership() public virtual onlyOwner {
        emit OwnershipTransferred(_owner, address(0));
        _owner = address(0);
    }
```

SLOC Appendix

Solidity Contracts

Language	Files	Lines	Blanks	Comments	Code	Complex
Solidity	0	0	0	0	0	0

Comments to Code 0/0 = 0%

Javascript Tests

Language	Files	Lines	Blanks	Comments	Code	Complex
JavaScript	0	0	0	0	0	0

Tests to Code 0/0 = 0%