

ENDUR - LIQUID STAKING TOKEN (LST)

SECURITY ASSESMENT REPORT

NOVEMBER 2024

Prepared for ENDUR





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1 About Cairo Security Clan

Cairo Security Clan is a leading force in the realm of blockchain security, dedicated to fortifying the foundations of the digital age. As pioneers in the field, we specialize in conducting meticulous smart contract security audits, ensuring the integrity and reliability of decentralized applications built on blockchain technology.

At Cairo Security Clan, we boast a multidisciplinary team of seasoned professionals proficient in blockchain security, cryptography, and software engineering. With a firm commitment to excellence, our experts delve into every aspect of the Web3 ecosystem, from foundational layer protocols to application-layer development. Our comprehensive suite of services encompasses smart contract audits, formal verification, and real-time monitoring, offering unparalleled protection against potential vulnerabilities.

Our team comprises industry veterans and scholars with extensive academic backgrounds and practical experience. Armed with advanced methodologies and cutting-edge tools, we scrutinize and analyze complex smart contracts with precision and rigor. Our track record speaks volumes, with a plethora of published research papers and citations, demonstrating our unwavering dedication to advancing the field of blockchain security.

At Cairo Security Clan, we prioritize collaboration and transparency, fostering meaningful partnerships with our clients. We believe in a customer-oriented approach, engaging stakeholders at every stage of the auditing process. By maintaining open lines of communication and soliciting client feedback, we ensure that our solutions are tailored to meet the unique needs and objectives of each project.

Beyond our core services, Cairo Security Clan is committed to driving innovation and shaping the future of blockchain technology. As active contributors to the ecosystem, we participate in the development of emerging technologies such as Starknet, leveraging our expertise to build robust infrastructure and tools. Through strategic guidance and support, we empower our partners to navigate the complexities of the blockchain landscape with confidence and clarity.

In summary, Cairo Security Clan stands at the forefront of blockchain security, blending technical prowess with a client-centric ethos to deliver unparalleled protection and peace of mind in an ever-evolving digital landscape. Join us in safeguarding the future of decentralized finance and digital assets with confidence and conviction.

2 Disclaimer

Disclaimer Limitations of this Audit:

This report is based solely on the materials and documentation provided by you to Cairo Security Clan for the specific purpose of conducting the security review outlined in the Summary of Audit and Scoped Files. The findings presented here may not be exhaustive and may not identify all potential vulnerabilities. Cairo Security Clan provides this review and report on an "as-is" and "as-available" basis. You acknowledge that your use of this report, including any associated services, products, protocols, platforms, content, and materials, occurs entirely at your own risk.

Inherent Risks of Blockchain Technology:

Blockchain technology remains in its developmental stage and is inherently susceptible to unknown risks and vulnerabilities. This review is specifically focused on the smart contract code and does not extend to the compiler layer, programming language elements beyond the reviewed code, or other potential security risks outside the code itself.

Report Purpose and Reliance:

This report should not be construed as an endorsement of any specific project or team, nor does it guarantee the absolute security of the audited smart contracts. No third party should rely on this report for any purpose, including making investment or purchasing decisions.

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3 Executive Summary

This document presents the security review performed by Cairo Security Clan on the Liquid Staking Token (LST) developed by Endur. Learn more from docs.

Endur.Fi is a platform that introduces xSTRK, a tradeable Liquid Staking Token (LST) on Starknet. Developed through a collaboration between STRKFarm and Karnot, Endur allows STRK token holders to stake their assets while maintaining liquidity.

The audit was performed using

- manual analysis of the codebase,
- automated analysis tools,
- simulation of the smart contract,
- analysis of edge test cases

8 points of attention, where 0 is classified as Critical, 2 are classified as High, 1 is classified as Medium, $\overline{3}$ are classified as Low, 1 is classified as Informational and 1 is classified as Best Practices. The issues are summarized in Fig. 1.

This document is organized as follows. Section 1 About Cairo Security Clan. Section 2 Disclaimer. Section 3 Executive Summary. Section 4 Summary of Audit. Section 5 Risk Classification. Section 6 Issues by Severity Levels. Section 7 Test Evaluation.

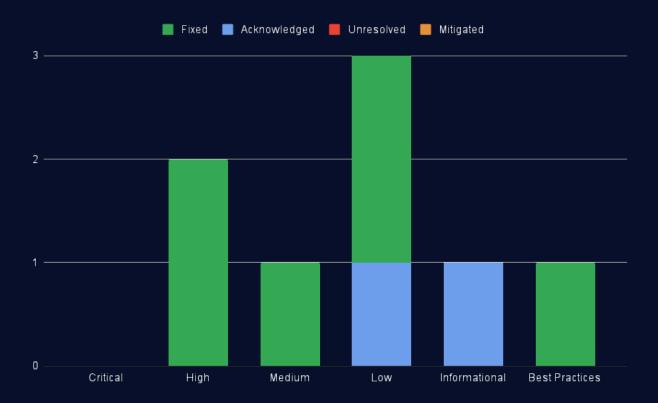


Fig 1: Distribution of issues: Critical (0), High (2), Medium (1), Low (3), Informational (1), Best Practices (1).

Distribution of status: Fixed (6), Acknowledged (2), Mitigated (0), Unresolved (0).



4 Summary of Audit

Audit Type	Security Review
Scarb Version	2.8.4
Final Report	22/11/2024
Repository	Endur-fi/lst
Initial Commit Hash	471693ff16d4db3272e721dc976e5d933e192782
Final Commit Hash	d607247e307c88e01deb1bae084bd2e62c67d47f
Documentation	Website documentation
Test Suite Assessment	High

4.1 Scoped Files

	Contracts
1	src/delegator/delegator.cairo
2	src/delegator/interface.cairo
3	src/interfaces/delegation pool.cairo
4	src/interfaces/staking.cairo
5	src/lib.cairo
6	src/lst/erc4626.cairo
7	src/lst/interface.cairo
8	src/lst/lst.cairo
9	src/utils/common.cairo
10	src/utils/constants.cairo
11	src/utils/erc20helper.cairo
12	src/utils/errors.cairo
13	src/utils/math.cairo
14	src/withdrawal_queue/interface.cairo
15	src/withdrawal queue/withdrawal queue.cairo

4.2 Issues

	Findings	Severity	Update
1	<pre>exit_delegation_pool_action() can be called directly, bypassing unstake_action()</pre>	High	Fixed
	function		
2	Attacker could perform DOS attack on withdrawal queue from taking funds by donating	High	Fixed
	1 wei		
3	Function _unclaimed_rewards() does not subtract commission of delegation pool	Medium	Fixed
4	_unclaimed_rewards() might use outdated global_index for calculation	Low	Acknowledged
5	_process_claim() could revert due to breaking the gas limit	Low	Fixed
6	Function adjust_mint() should be called before _convert_to_assets()	Low	Fixed
7	<pre>info.delegator_index is not used and has no impact in the function update</pre>	Informational	Acknowledged
	<pre>delegator_info()</pre>		
8	Unnecessary storage usage	Best Practices	Fixed



5 Risk Classification

The risk rating methodology used by Cairo Security Clan follows the principles established by the CVSS risk rating methodology. The severity of each finding is determined by two factors: **Likelihood** and **Impact**.

Likelihood measures how likely an attacker will uncover and exploit the finding. This factor will be one of the following values:

- a) High: The issue is trivial to exploit and has no specific conditions that need to be met;
- b) Medium: The issue is moderately complex and may have some conditions that need to be met;
- c) Low: The issue is very complex and requires very specific conditions to be met.

When defining the likelihood of a finding, other factors are also considered. These can include but are not limited to Motive, opportunity, exploit accessibility, ease of discovery, and ease of exploit.

Impact is a measure of the damage that may be caused if an attacker exploits the finding. This factor will be one of the following values:

- a) High: The issue can cause significant damage such as loss of funds or the protocol entering an unrecoverable state;
- b) Medium: The issue can cause moderate damage such as impacts that only affect a small group of users or only a particular part of the protocol;
- c) **Low**: The issue can cause little to no damage such as bugs that are easily recoverable or cause unexpected interactions that cause minor inconveniences.

When defining the impact of a finding other factors are also considered. These can include but are not limited to Data/state integrity, loss of availability, financial loss, and reputation damage. After defining the likelihood and impact of an issue, the severity can be determined according to the table below.

		Likelihood		
		High	Medium	Low
ct	High	Critical	High	Medium
Impact	Medium	High	Medium	Low
<u> u</u>	Low	Medium	Low	Info/Best Practices

To address issues that do not fit a High/Medium/Low severity, Cairo Security Clan also uses three more finding severities: Informational, Best Practices and Gas

- a) **Informational** findings do not pose any risk to the application, but they carry some information that the audit team intends to formally pass to the client;
- b) Best Practice findings are used when some piece of code does not conform with smart contract development best practices;
- b) Gas findings are used when some piece of code uses more gas than it should be or have some functions that can be removed to save gas.



6 Issues by Severity Levels

6.1 High

6.1.1 exit_delegation_pool_action() Can Be Called Directly, Bypassing unstake_action() Function

File(s): src/delegator/delegator.cairo

Description: The unstaking process in the delegator contract consists of two steps. First, the owner calls the function start_unstake_intent(), which triggers the delegation_pool.exit_delegation_pool_intent() function to initiate an unstaking delay. After the delay period, any user can invoke the unstake_action() function (permissionless) to finalize the unstaking process by calling delegation_pool.exit_delegation_pool_action().

```
fn unstake_action(ref self: ContractState) {
        self._general_validations();
             t(self.is_unstake_in_progress.read(), Errors::UNSTAKE_NOT_IN_PROGRESS);
        // ensures rewards are claimed and re-staked
       self.lst.read().claim_rewards();
        let amount = self
            .delegation_pool
            .read()
            .exit_delegation_pool_action(get_contract_address()); // @audit this function can be called directly on
        erc20helper::approve(
            self.token.read(), self.withdraw_queue.read().contract_address, amount.into()
18
       self.withdraw_queue.read().take_funds(amount.into());
20
        self.is_unstake_in_progress.write(false);
        self.emit(UnstakeAction { amount: amount });
24
```

However, the function exit_delegation_pool_action() can be called by anyone for any address. An attacker could potentially call this function directly, bypassing the unstake_action() function, which would finalize the unstaking process and transfer the tokens to the delegator contract.

This attack vector would prevent the take_funds() function from being executed, meaning the funds would be transferred to the delegator contract but not properly pulled to the withdrawal queue. As a result, users in the withdrawal queue would be unable to withdraw their funds. While the funds wouldn't be locked (since the _stake() function uses the entire contract balance to stake), the internal accounting would be corrupted.

Recommendation(s): Consider implementing additional logic to properly handle tokens that are unstaked via direct calls to exit_delegation_pool_action().

Status: Fixed

Update from the client: Fixed in c82774fb4



6.1.2 Attacker Could Perform DOS Attack on Withdrawal Queue by Donating 1 Wei

File(s): src/withdrawal queue/withdrawal queue.cairo

Description: The withdrawal queue mechanism in the system is designed to process unstaking in two steps:

- 1. The LST contract calls the function reduce_total_queue_amount() to notify the withdrawal queue of an unstaking event, causing the queue to increase the value of intransit_amount.
- 2. The take_funds() function is called to actually transfer the tokens to the withdrawal queue, thereby reducing intransit_amount.

```
fn take_funds(ref self: ContractState, amount: u250) {
   let caller = get_caller_address();
   // should be ok permissionless i guess
   let unprocessed = self.unprocessed_withdraw_queue_amount.read();
   let total_pending_funds = self.intransit_amount.read();
   assert(total_pending_funds >= amount, Errors::EXCESS_FUNDS); // @audit Attacker can donate 1 wei and force the original unstaking flow to fail
   // ...
   }
}
```

The core issue is that the take_funds() function is permissionless, meaning any address can call it and donate an arbitrary amount of funds (e.g., 1 wei). By donating even a minimal amount, an attacker can artificially reduce the value of intransit_amount, triggering a situation where the condition total_pending_funds >= amount fails when the original unstaking operation attempts to process the withdrawal.

Recommendation(s): Consider adding access control to the function take_funds() to prevent unauthorized addresses from calling it and modifying state variables.

Status: Fixed

Update from the client: Fixed in ee20d1a2



6.2 Medium

6.2.1 Function _unclaimed_rewards() Does Not Subtract Commission of Delegation Pool

File(s): src/lst/lst.cairo

Description: In the delegation pool, a commission is deducted from the earned rewards, as seen in the function update_rewards. This function calculates the rewards, subtracts the commission, and updates the unclaimed rewards for the pool member:

However, the _unclaimed_rewards() function in the lst contract does not account for this commission when calculating the unclaimed rewards. As a result, the function returns a value that is higher than it should be, which affects the output of the total_assets() function and the share calculation for the ERC4626 vault.

Recommendation(s): Consider adjusting the _unclaimed_rewards() function to subtract the commission from the calculated unclaimed rewards.

Status: Fixed

Update from the client: Fixed in 60486a5



6.3 Low

6.3.1 _unclaimed_rewards() Might Use Outdated global_index for Calculation

File(s): src/lst/lst.cairo

Description: In the staking contract, the reward calculation for each user is tracked by an index. Subtracting the current global_index from the last recorded index gives the amount of rewards earned per staked token. The function _unclaimed_rewards() currently reads the global_index directly from the staking contract's storage:

However, this value could be outdated if the update_global_index_if_needed() function is not called beforehand. As a result, the calculation of unclaimed rewards may be inaccurate, which can impact other accounting calculations and potentially lead to incorrect reward distributions.

Recommendation(s): Consider re-implementing the logic of update_global_index_if_needed() to ensure the global_index is always up-to-date before it is used for reward calculation.

Status: Acknowledged

Update from the client: As per Starknet, they shall update the index every 30 minutes. Similarly, we can also run a backend system to trigger an index update every 30 minutes.



6.3.2 _process_claim() Could Revert Due to Breaking the Gas Limit

File(s): src/withdrawal queue/withdrawal queue.cairo

Description: The function _process_claim() handles user withdrawal claims. Users can claim a withdrawal request if it is the oldest unclaimed request, or if the current timestamp has passed the claim time.

```
let request = self.requests.read(request_id);
             t(!request.isClaimed, Errors::ALREADY_CLAIMED);
16
        let last_fill_id = self.last_fill_id.read();
18
        let condition1 = (last_fill_id + 1) == request_id;
19
        let condition2 = request.claimTime <= get_block_timestamp();</pre>
20
              (condition1 || condition2, Errors::TOO_EARLY_TO_CLAIM);
22
23
        let request = WithdrawRequest { isClaimed: true, ..request };
24
        self.requests.write(request_id, request);
        if (condition1) {
            let mut next_id = request_id + 1;
            loop {
30
                let request = self.requests.read(next_id);
                if (!request.isClaimed) {
                    self.last_fill_id.write(next_id - 1); // @audit claim ahead of `last_fill_id` could make this
33
                    break;
34
                }
35
                next_id += 1;
36
38
39
40
```

When the request is claimed under the first condition, the function enters a loop to find the next unclaimed request. However, this loop is unbounded, meaning there is no way to stop it if the next unclaimed request cannot be found after too many iterations. As a result, the function could run out of gas, causing it to revert. This would prevent the withdrawal request from being processed and leave it stuck in the queue.

Although the function claim_withdrawal() is public, allowing anyone to help other users claim their withdrawals, callers must still pay the gas fees. Malicious actors could exploit this by spamming the system with thousands of 1-wei withdrawal requests, forcing the admin or other users to spend a significant amount of gas to prevent _process_claim() from running out of gas.

Recommendation(s): Consider reviewing the current mechanism in the _process_claim() function. A suggestion is allowing users to specifically choose to claim a request under the second condition (i.e., when the claim time has passed) to ensure that withdrawal requests are not left stuck in the queue. Another suggestion is removing claiming under the first condition and forcing all withdrawal requests to go through the waiting period.

Status: Fixed

Update from the client: Fixed in f86c8ad2



6.3.3 Function adjust_mint() **Should Be Called Before** _convert_to_assets()

File(s): src/lst/erc4626.cairo

Description: In the ERC4626 standard, each action (like minting or redeeming) has a corresponding preview function. These preview functions estimate the amount of assets or shares a user will receive based on their input and consider fees through the use of "adjust" functions. The "adjust" functions are designed to modify the input value (shares or assets) to account for fees.

```
fn adjust_deposit(self: @ComponentState<TContractState>, assets: u256) -> u256 {
            assets
        fn adjust_mint(self: @ComponentState<TContractState>, shares: u256) -> u256 {
        fn adjust_withdraw(self: @ComponentState<TContractState>, assets: u256) -> u256 {
        fn adjust_redeem(self: @ComponentState<TContractState>, shares: u256) -> u256 {
            shares
   }
      preview_mint(self: @ComponentState<TContractState>, shares: u256) -> u256 {
        let raw_amount = self._convert_to_assets(shares, Rounding::Ceil);
        Fee::adjust_mint(self, raw_amount) // @audit should be called before calling _convert_to_assets()
   }
   fn preview_redeem(self: @ComponentState<TContractState>, shares: u256) -> u256 {
       let raw_amount = self._convert_to_assets(shares, Rounding::Floor);
24
        Fee::adjust_redeem(self, raw_amount) // @audit should be called before _convert_to_assets()
26
```

Currently, in the preview_mint() and preview_redeem() functions, the adjustment functions are applied after converting shares to assets using _convert_to_assets(). However, the "adjust" functions are intended to be applied on the original input (shares for adjust_mint() and shares for adjust_redeem()) as shown in the naming of input parameters. Applying them after the conversion to assets could lead to unintended results, as the adjustments may not be applied to the intended value.

Recommendation(s): Consider calling function adjust_mint() before _convert_to_assets(). Or, if the variable naming in adjust_mint() or adjust_redeem() is incorrect and these functions were meant to take assets as input, the function signatures and their calls should be adjusted accordingly.

Status: Fixed

Update from the client: Fixed in 28d9d77



6.4 Informational

6.4.1 info.delegator_index is Not Used and Has No Impact in the Function update_delegator_info()

File(s): src/lst/lst.cairo

Description: The function update_delegator_info() allows the caller to pass in a delegator address and a DelegatorInfo struct. The DelegatorInfo struct contains a delegator_index field, but this field is never used in the function and does not impact the execution of the function in any way.

In the function _update_delegator_info(), the info.delegator_index is not used and will be overwritten before being written to storage.

Recommendation(s): Consider allowing the caller to pass only the is_active variable instead of the entire DelegatorInfo struct to the function update_delegator_info().

Status: Acknowledged

Update from the client: This design choice prioritizes simplicity. In the future, when additional properties are added to DelegatorInfo, they can all be set through a single input. Since this is an admin-only function, the additional index won't introduce confusion. Furthermore, sufficient checks are implemented in the code to ensure this variable does not disrupt any logic.



6.5 Best Practices

6.5.1 Unnecessary Storage Usage

File(s): src/withdrawal queue/withdrawal queue.cairo

Description: The Withdrawal Queue contract acts like the ERC721 interface; in storage, it holds the next request IDs at the last_request_id property. However, this property type is u256. Since it is increased in each request, reaching the u128 limit is not feasible. The current implementation uses two storage slots because the u256 struct has two u128 properties. This causes unnecessary storage usage.

Recommendation(s): Consider using u128 data type for last_request_id.

Status: Fixed

Update from the client: Fixed in commit 8a59fd.



7 Test Evaluation

7.1 Compilation Output

```
scarb build
        Updating git repository github.com/starkware-libs/starknet-staking
        Updating git repository github.com/foundry-rs/starknet-foundry
    Downloading openzeppelin v0.18.0
    Downloading openzeppelin_security v0.18.0
     Downloading openzeppelin_finance v0.18.0
    Downloading openzeppelin_merkle_tree v0.18.0
     Downloading openzeppelin_presets v0.18.0
    Downloading openzeppelin_token v0.18.0
     Downloading openzeppelin_governance v0.18.0
     Downloading openzeppelin_account v0.18.0
     Downloading openzeppelin_access v0.18.0
     Downloading openzeppelin_upgrades v0.18.0
     Downloading openzeppelin_utils v0.18.0
     Downloading openzeppelin_introspection v0.18.0
        Updating crates.io index
16
        Updating git repository `github.com/xJonathanLEI/starknet-rs`
        Updating git submodule `github.com/OpenZeppelin/cairo-contracts`
    Downloading crates ...
19
     Downloaded tinyvec_macros v0.1.1
20
      Downloaded autocfg v1.3.0
     Downloaded num-traits v0.2.19
      Downloaded getrandom v0.2.15
      Downloaded cairo-lang-proc-macros v2.8.2
      Downloaded futures-macro v0.3.30
25
      Downloaded cairo-lang-compiler v2.8.2
      Downloaded cairo-lang-macro-attributes v0.1.0
28
      Downloaded cached_proc_macro_types v0.1.1
      Downloaded smallvec v1.13.2
29
      Downloaded parking_lot_core v0.9.10
30
      Downloaded rawpointer v0.2.1
      Downloaded schemars_derive v0.8.21
      Downloaded heck v0.4.1
33
      Downloaded cairo-lang-sierra v2.8.2
34
      Downloaded salsa20 v0.10.2
35
      Downloaded mio v1.0.2
36
37
      Downloaded clap_lex v0.7.2
      Downloaded which v5.0.0
38
      Downloaded strsim v0.10.0
39
      Downloaded promptly v0.3.1
      Downloaded crossbeam-deque v0.8.5
      Downloaded memoffset v0.6.5
42
      Downloaded hermit-abi v0.3.9
43
      Downloaded native-tls v0.2.12
44
      Downloaded tempfile v3.13.0
45
      Downloaded windows-targets v0.48.5
      Downloaded colored v2.1.0
       Compiling ark-secp256r1 v0.4.0
48
       Compiling ark-secp256k1 v0.4.0
49
       Compiling linkme-impl v0.3.28
50
       Compiling similar v2.6.0
       Compiling normalize-line-endings v0.3.0
       Compiling unicode-width v0.1.13
       Compiling console v0.15.8
54
       Compiling snapbox v0.4.17
       Compiling linkme v0.3.28
56
       Compiling cairo-lang-runner v2.8.2
       Compiling starknet v0.11.0 (github.com/xJonathanLEI/starknet-rs?rev=660a732#660a7323)
58
       Compiling cairo-lang-macro-attributes v0.1.0
59
       Compiling cairo-lang-macro-stable v1.0.0
60
       Compiling cairo-lang-macro v0.1.0
       Compiling shared v0.1.0 (/home/runner/.cache/scarb/registry/git/checkouts/starknet-foundry-v6206fshfutuo/3817
        c903/crates/shared)
```



```
Compiling snforge-scarb-plugin v0.32.0 (/home/runner/.cache/scarb/registry/git/checkouts/starknet-foundry-v6206fshfutuo/3817c903/crates/snforge-scarb-plugin)

Finished `release` profile [optimized] target(s) in 10m 05s

Compiling lst v0.1.0 (/home/runner/work/031-KARNOT-LST/031-KARNOT-LST/contractsafteraudit/Scarb.toml)

warn: external contracts not found for selectors: `contracts_commons::erc20_mocks::DualCaseERC20Mock`

Finished `dev` profile target(s) in 11 minutes
```

7.2 Tests Output

```
snforge test --max-n-steps 4000000000
        Updating git repository github.com/starkware-libs/starknet-staking
        Updating git repository github.com/foundry-rs/starknet-foundry
     Downloading openzeppelin v0.18.0
     Downloading openzeppelin_security v0.18.0
     Downloading openzeppelin_finance v0.18.0
     Downloading openzeppelin_merkle_tree v0.18.0
     Downloading openzeppelin_presets v0.18.0
10
     Downloading openzeppelin_token v0.18.0
     Downloading openzeppelin_governance v0.18.0
     Downloading openzeppelin_account v0.18.0
     Downloading openzeppelin_access v0.18.0
     Downloading openzeppelin_upgrades v0.18.0
14
     Downloading openzeppelin_utils v0.18.0
15
     Downloading openzeppelin_introspection v0.18.0
16
        Updating crates.io index
        Updating git repository `github.com/xJonathanLEI/starknet-rs` Updating git submodule `github.com/OpenZeppelin/cairo-contracts`
18
19
     Downloading crates ...
20
      Downloaded percent-encoding v2.3.1
      Downloaded autocfg v1.3.0
      Downloaded quote v1.0.37
23
      Downloaded ryu v1.0.18
24
25
      Downloaded futures-sink v0.3.30
      Downloaded slab v0.4.9
      Downloaded windows-targets v0.52.6
28
      Downloaded minimal-lexical v0.2.1
      Downloaded derivative v2.2.0
29
      Downloaded anyhow v1.0.89
30
      Downloaded crossbeam-utils v0.8.20
      Downloaded cairo-lang-project v2.8.2
      Downloaded project-root v0.2.2
33
      Downloaded futures-executor v0.3.30
34
      Downloaded deadpool-runtime v0.1.4
      Downloaded sct v0.7.1
36
      Downloaded native-tls v0.2.12
      Downloaded dirs-sys-next v0.1.2
38
      Downloaded libredox v0.1.3
39
      Downloaded ring v0.17.8
40
      Downloaded rustls-pemfile v1.0.4
      Downloaded num-complex v0.2.4
      Downloaded rawpointer v0.2.1
44
      Downloaded itertools v0.11.0
      Downloaded good_lp v1.8.1
      Downloaded string_cache v0.8.7
46
      Downloaded num-traits v0.1.43
      Downloaded const-hex v1.13.1
48
      Downloaded xshell-macros v0.2.6
49
      Downloaded petgraph v0.6.5
50
      Downloaded xshell v0.2.6
      Downloaded cairo-lang-syntax-codegen v2.8.2
52
      Downloaded clap v4.5.18
53
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      Downloaded portable-atomic v1.7.0
      Downloaded doc-comment v0.3.3
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      Downloaded instant v0.1.13
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      Downloaded nu-ansi-term v0.46.0
      Downloaded crossbeam-epoch v0.9.18
      Downloaded globset v0.4.15
      Downloaded starknet_api v0.13.0-rc.1
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      Downloaded clap_derive v4.5.18
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      Downloaded overload v0.1.1
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      Downloaded heck v0.5.0
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      Downloaded windows_x86_64_gnullvm v0.48.5
      Downloaded yansi v0.5.1
69
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      Downloaded linux-raw-sys v0.4.14
      Downloaded ignore v0.4.23
      Downloaded relative-path v1.9.3
      Downloaded id-arena v2.2.1
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      Downloaded genco v0.17.9
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      Downloaded windows_i686_gnu v0.48.5
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      Downloaded windows_i686_msvc v0.48.5
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      Downloaded cairo-lang-semantic v2.8.2
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      Downloaded number_prefix v0.4.0
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      Downloaded scarb-metadata v1.12.0
      Downloaded windows-targets v0.48.5
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      Downloaded diff v0.1.13
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      Downloaded toml v0.8.19
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      Downloaded diffy v0.3.0
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      Downloaded ena v0.14.3
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      Downloaded pkcs8 v0.10.2
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      Downloaded security-framework-sys v2.11.1
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      Downloaded serdect v0.2.0
129
      Downloaded flatten-serde-json v0.1.0
```



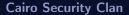


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      Downloaded starknet-crypto v0.5.2
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      Downloaded signature v2.2.0
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      Downloaded wyz v0.5.1
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      Downloaded crypto-common v0.1.6
530
      Downloaded digest v0.10.7
      Downloaded cpufeatures v0.2.14
      Downloaded keccak v0.1.5
533
      Downloaded itoa v1.0.11
534
535
      Downloaded zerocopy-derive v0.7.35
      Downloaded cfg-if v1.0.0
536
      Downloaded bumpalo v3.16.0
      Downloaded once_cell v1.19.0
      Downloaded syn v2.0.79
539
      Downloaded futures-core v0.3.30
540
      Downloaded iana-time-zone v0.1.60
541
      Downloaded log v0.4.22
542
543
      Downloaded wasm-bindgen-shared v0.2.93
      Downloaded wasm-bindgen-macro v0.2.93
544
      Downloaded libm v0.2.8
545
546
      Downloaded serde_derive v1.0.210
      Downloaded serde v1.0.210
547
      Downloaded unicode-bidi v0.3.15
548
      Downloaded tinyvec_macros v0.1.1
549
      Downloaded tinyvec v1.8.0
```





```
Downloaded url v2.5.2
      Downloaded powerfmt v0.2.0
552
      Downloaded num-conv v0.1.0
553
      Downloaded crypto-bigint v0.5.5
554
      Downloaded sha2 v0.10.8
555
      Downloaded const-oid v0.9.6
      Downloaded version_check v0.9.5
      Downloaded memchr v2.7.4
      Downloaded starknet-types-core v0.1.6
559
560
      Downloaded spin v0.9.8
      Downloaded zerocopy v0.7.35
      Downloaded ppv-lite86 v0.2.20
      Downloaded rand_chacha v0.3.1
563
      Downloaded rand_core v0.6.4
564
      Downloaded rand v0.8.5
565
      Downloaded num-bigint v0.4.6
566
      Downloaded smol_str v0.2.2
567
      Downloaded form_urlencoded v1.2.1
568
       Compiling snforge_scarb_plugin v0.32.0 (git+github.com/foundry-rs/starknet-foundry?tag=v0.32.0#3817
         c903b640201c72e743b9bbe70a97149828a2)
       Compiling proc-macro2 v1.0.86
       Compiling unicode-ident v1.0.12
       Compiling version_check v0.9.5
572
       Compiling libc v0.2.158
573
       Compiling autocfg v1.3.0
574
       Compiling quote v1.0.37
575
       Compiling syn v2.0.79
576
       Compiling cfg-if v1.0.0
       Compiling serde v1.0.210
578
       Compiling typenum v1.17.0
579
       Compiling generic-array v0.14.7
580
       Compiling byteorder v1.5.0
581
       Compiling getrandom v0.2.15
582
       Compiling rand_core v0.6.4
583
       Compiling ahash v0.8.11
584
       Compiling num-traits v0.2.19
585
       Compiling serde_derive v1.0.210
586
       Compiling zerocopy-derive v0.7.35
587
       Compiling zerocopy v0.7.35
588
       Compiling ppv-lite86 v0.2.20
589
       Compiling rand_chacha v0.3.1
590
       Compiling rand v0.8.5
       Compiling num-integer v0.1.46
592
       Compiling once_cell v1.19.0
       Compiling num-bigint v0.4.6
594
       Compiling crypto-common v0.1.6
595
       Compiling itoa v1.0.11
596
       Compiling memchr v2.7.4
597
       Compiling subtle v2.6.1
598
       Compiling allocator-api2 v0.2.18
599
       Compiling hashbrown v0.14.5
600
       Compiling block-buffer v0.10.4
601
       Compiling digest v0.10.7
602
       Compiling spin v0.9.8
603
       Compiling ryu v1.0.18
604
       Compiling either v1.13.0
605
       Compiling equivalent v1.0.1
606
       Compiling indexmap v2.5.0
607
       Compiling serde_json v1.0.128
608
       Compiling pin-project-lite v0.2.14
609
       Compiling lock_api v0.4.12
610
       Compiling syn v1.0.109
       Compiling parking_lot_core v0.9.10
       Compiling tracing-core v0.1.32
613
       Compiling tracing-attributes v0.1.27
614
       Compiling tracing v0.1.40
       Compiling jobserver v0.1.32
616
       Compiling shlex v1.3.0
       Compiling cc v1.1.18
618
       Compiling lazy_static v1.5.0
```



```
Compiling cpufeatures v0.2.14
       Compiling zeroize_derive v1.4.2
       Compiling indexmap v1.9.3
622
       Compiling thiserror v1.0.64
623
       Compiling thiserror-impl v1.0.64
624
       Compiling serde_derive_internals v0.29.1
       Compiling hashbrown v0.12.3
626
       Compiling schemars v0.8.21
       Compiling schemars_derive v0.8.21
628
       Compiling sha2 v0.10.8
629
       Compiling smallvec v1.13.2
630
       Compiling dyn-clone v1.0.17
631
       Compiling itertools v0.12.1
632
       Compiling log v0.4.22
633
       Compiling cairo-lang-utils v2.8.2
634
       Compiling scopeguard v1.2.0
635
       Compiling derivative v2.2.0
       Compiling heck v0.4.1
       Compiling keccak v0.1.5
       Compiling stable_deref_trait v1.2.0
639
       Compiling triomphe v0.1.13
640
       Compiling sha3 v0.10.8
       Compiling rust-analyzer-salsa-macros v0.17.0-pre.6
642
       Compiling parking_lot v0.12.3
643
       Compiling rustc-hash v1.1.0
644
645
       Compiling oorandom v11.1.4
       Compiling rust-analyzer-salsa v0.17.0-pre.6
646
647
       Compiling smol_str v0.2.2
       Compiling lambdaworks-math v0.7.0
648
       Compiling lambdaworks-crypto v0.7.0
       Compiling starknet-types-core v0.1.6
650
       Compiling aho-corasick v1.1.3
       Compiling regex-syntax v0.8.5
652
653
       Compiling regex-automata v0.4.8
       Compiling zeroize v1.8.1
654
       Compiling bytes v1.7.1
655
       Compiling fnv v1.0.7
656
       Compiling anyhow v1.0.89
       Compiling semver v1.0.23
658
       Compiling dirs-sys-next v0.1.2
659
       Compiling crunchy v0.2.2
660
       Compiling paste v1.0.15
661
       Compiling hex v0.4.3
662
       Compiling dirs-next v2.0.0
       Compiling cairo-lang-debug v2.8.2
664
       Compiling ring v0.17.8
665
       Compiling hmac v0.12.1
666
       Compiling siphasher v0.3.11
667
       Compiling crossbeam-utils v0.8.20
668
       Compiling tiny-keccak v2.0.2
       Compiling genco-macros v0.17.9
670
       Compiling unicode-xid v0.2.5
       Compiling path-clean v1.0.1
673
       Compiling cairo-lang-filesystem v2.8.2
       Compiling phf_shared v0.10.0
       Compiling term v0.7.0
675
       Compiling ark-ff-macros v0.4.2
676
       Compiling ark-ff-asm v0.4.2
       Compiling new_debug_unreachable v1.0.6
678
       Compiling same-file v1.0.6
679
       Compiling precomputed-hash v0.1.1
680
       Compiling ident_case v1.0.1
681
       Compiling bit-vec v0.6.3
682
       Compiling fixedbitset v0.4.2
683
       Compiling strsim v0.11.1
684
       Compiling darling_core v0.20.10
685
       Compiling petgraph v0.6.5
686
       Compiling bit-set v0.5.3
687
       Compiling ena v0.14.3
688
       Compiling string_cache v0.8.7
```



```
Compiling walkdir v2.5.0
690
       Compiling ascii-canvas v3.0.0
691
       Compiling regex v1.11.0
692
       Compiling lalrpop-util v0.20.2
693
       Compiling itertools v0.11.0
694
       Compiling inout v0.1.3
       Compiling num-complex v0.2.4
696
       Compiling xshell-macros v0.2.6
       Compiling pico-args v0.5.0
698
       Compiling pkg-config v0.3.30
       Compiling untrusted v0.9.0
700
       Compiling relative-path v1.9.3
701
       Compiling genco v0.17.9
702
       Compiling lalrpop v0.20.2
703
       Compiling xshell v0.2.6
704
       Compiling cipher v0.4.4
705
       Compiling crossbeam-epoch v0.9.18
       Compiling darling_macro v0.20.10
       Compiling crypto-bigint v0.5.5
       Compiling unescaper v0.1.5
709
       Compiling rawpointer v0.2.1
       Compiling serde_json_pythonic v0.1.2
       Compiling ndarray v0.13.1
       Compiling matrixmultiply v0.2.4
713
       Compiling cairo-lang-sierra v2.8.2
714
715
       Compiling cairo-lang-syntax v2.8.2
       Compiling darling v0.20.10
716
       Compiling crossbeam-deque v0.8.5
       Compiling cairo-lang-syntax-codegen v2.8.2
718
       Compiling cairo-lang-diagnostics v2.8.2
719
       Compiling ark-serialize-derive v0.4.2
720
       Compiling colored v2.1.0
       Compiling ark-std v0.4.0
722
723
       Compiling socket2 v0.5.7
       Compiling mio v1.0.2
724
       Compiling unicode-segmentation v1.11.0
725
       Compiling futures-core v0.3.30
726
       Compiling adler2 v2.0.0
       Compiling base64ct v1.6.0
728
       Compiling password-hash v0.4.2
729
       Compiling miniz_oxide v0.8.0
       Compiling convert_case v0.6.0
       Compiling tokio v1.40.0
732
       Compiling ark-serialize v0.4.2
       Compiling cairo-lang-parser v2.8.2
734
       Compiling serde_with_macros v3.9.0
735
       Compiling rfc6979 v0.4.0
736
       Compiling itertools v0.10.5
       Compiling bstr v1.10.0
738
       Compiling num-traits v0.1.43
739
       Compiling crc32fast v1.4.2
740
       Compiling slab v0.4.9
       Compiling indoc v2.0.5
742
743
       Compiling const-fnv1a-hash v1.1.0
       Compiling overload v0.1.1
744
       Compiling rustc-hex v2.1.0
745
       Compiling nu-ansi-term v0.46.0
746
       Compiling globset v0.4.15
747
       Compiling flate2 v1.0.34
748
       Compiling sprs v0.7.1
749
       Compiling ark-ff v0.4.2
750
       Compiling pbkdf2 v0.11.0
       Compiling http v0.2.12
       Compiling serde_spanned v0.6.7
753
       Compiling toml_datetime v0.6.8
754
755
       Compiling futures-sink v0.3.30
       Compiling futures-task v0.3.30
756
       Compiling winnow v0.6.18
       Compiling static_assertions v1.1.0
758
       Compiling rustls v0.21.12
```



```
Compiling httparse v1.9.4
760
       Compiling pin-utils v0.1.0
761
       Compiling tinyvec_macros v0.1.1
762
       Compiling tinyvec v1.8.0
763
       Compiling futures-util v0.3.30
764
       Compiling toml_edit v0.22.22
       Compiling tokio-util v0.7.12
766
       Compiling minilp v0.2.2
767
       Compiling ignore v0.4.23
768
769
       Compiling diffy v0.3.0
       Compiling rlp v0.5.2
770
       Compiling aes v0.8.4
       Compiling sct v0.7.1
       Compiling rustls-webpki v0.101.7
773
       Compiling zstd-sys v2.0.13+zstd.1.5.6
774
       Compiling yansi v0.5.1
775
       Compiling percent-encoding v2.3.1
776
       Compiling try-lock v0.2.5
778
       Compiling base64 v0.21.7
       Compiling diff v0.1.13
779
       Compiling pretty_assertions v1.4.0
       Compiling want v0.3.1
       Compiling form_urlencoded v1.2.1
782
       Compiling impl-rlp v0.3.0
783
       Compiling cairo-lang-formatter v2.8.2
784
       Compiling h2 v0.3.26
785
       Compiling good_lp v1.8.1
786
787
       Compiling toml v0.8.19
       Compiling unicode-normalization v0.1.23
788
       Compiling fixed-hash v0.8.0
789
       Compiling http-body v0.4.6
790
       Compiling cairo-lang-defs v2.8.2
       Compiling futures-channel v0.3.30
792
793
       Compiling starknet-curve v0.5.0 (github.com/xJonathanLEI/starknet-rs?rev=660a732#660a7323)
794
       Compiling impl-serde v0.4.0
       Compiling tower-service v0.3.3
795
       Compiling httpdate v1.0.3
796
       Compiling indent v0.1.1
797
       Compiling unicode-bidi v0.3.15
       Compiling idna v0.5.0
799
       Compiling cairo-lang-plugins v2.8.2
800
       Compiling hyper v0.14.30
801
       Compiling starknet-crypto v0.7.1 (github.com/xJonathanLEI/starknet-rs?rev=660a732#660a7323)
802
       Compiling cairo-lang-proc-macros v2.8.2
803
       Compiling cairo-lang-eq-solver v2.8.2
804
       Compiling cairo-lang-test-utils v2.8.2
       Compiling tokio-rustls v0.24.1
806
       Compiling uint v0.9.5
807
       Compiling cairo-lang-sierra-type-size v2.8.2
808
       Compiling serde_with v3.9.0
809
       Compiling salsa20 v0.10.2
810
       Compiling webpki v0.22.4
       Compiling bzip2-sys v0.1.11+1.0.8
       Compiling zstd-safe v5.0.2+zstd.1.5.2
813
       Compiling id-arena v2.2.1
814
       Compiling rayon-core v1.12.1
815
       Compiling radium v0.7.0
816
       Compiling starknet-core v0.11.1 (github.com/xJonathanLEI/starknet-rs?rev=660a732#660a7323)
       Compiling cairo-lang-semantic v2.8.2
818
       Compiling webpki-roots v0.22.6
819
       Compiling scrypt v0.10.0
820
       Compiling primitive-types v0.12.2
       Compiling ethbloom v0.13.0
       Compiling hyper-rustls v0.24.2
823
       Compiling starknet-ff v0.3.7
824
825
       Compiling url v2.5.2
       Compiling serde_urlencoded v0.7.1
826
       Compiling rustls-pemfile v1.0.4
827
       Compiling ctr v0.9.2
828
       Compiling hashbrown v0.13.2
829
```



```
Compiling uuid v0.8.2
       Compiling async-trait v0.1.83
831
       Compiling auto_impl v1.2.0
832
       Compiling encoding_rs v0.8.34
833
       Compiling tap v1.0.1
834
       Compiling ipnet v2.10.0
       Compiling powerfmt v0.2.0
836
       Compiling mime v0.3.17
837
       Compiling request v0.11.18
838
839
       Compiling deranged v0.3.11
       Compiling wyz v0.5.1
840
       Compiling eth-keystore v0.5.0
841
       Compiling ark-poly v0.4.2
842
       Compiling starknet-curve v0.4.2
843
       Compiling ethereum-types v0.14.1
844
       Compiling cairo-lang-lowering v2.8.2
845
       Compiling cairo-lang-sierra-gas v2.8.2
       Compiling cairo-lang-sierra-ap-change v2.8.2
847
848
       Compiling cairo-lang-casm v2.8.2
       Compiling rust_decimal v1.36.0
849
       Compiling funty v2.0.0
850
       Compiling assert_matches v1.5.0
       Compiling num-conv v0.1.0
852
       Compiling time-core v0.1.2
853
       Compiling utf8parse v0.2.2
854
       Compiling anstyle-parse v0.2.5
855
       Compiling time v0.3.36
856
857
       Compiling cairo-lang-sierra-to-casm v2.8.2
       Compiling bitvec v1.0.1
858
       Compiling rayon v1.10.0
859
       Compiling cairo-lang-sierra-generator v2.8.2
860
       Compiling bzip2 v0.4.4
861
862
       Compiling starknet-providers v0.11.0 (github.com/xJonathanLEI/starknet-rs?rev=660a732#660a7323)
863
       Compiling starknet-crypto-codegen v0.3.3
       Compiling zstd v0.11.2+zstd.1.5.2
864
       Compiling ark-ec v0.4.2
865
       Compiling starknet-signers v0.9.0 (github.com/xJonathanLEI/starknet-rs?rev=660a732#660a7323)
866
       Compiling cairo-lang-project v2.8.2
867
       Compiling const_format_proc_macros v0.2.33
868
       Compiling thiserror-impl-no-std v2.0.2
869
       Compiling sha1 v0.10.6
870
       Compiling lru v0.12.4
       Compiling num-modular v0.5.1
872
       Compiling anstyle-query v1.1.1
       Compiling minimal-lexical v0.2.1
874
       Compiling is_terminal_polyfill v1.70.1
875
       Compiling anstyle v1.0.8
876
       Compiling colorchoice v1.0.2
877
       Compiling arrayvec v0.7.6
878
       Compiling constant_time_eq v0.1.5
879
       Compiling zip v0.6.6
880
       Compiling anstream v0.6.15
881
       Compiling nom v7.1.3
882
883
       Compiling num-prime v0.4.4
       Compiling thiserror-no-std v2.0.2
884
       Compiling const_format v0.2.33
885
       Compiling starknet-accounts v0.10.0 (github.com/xJonathanLEI/starknet-rs?rev=660a732#660a7323)
886
       Compiling cairo-lang-compiler v2.8.2
887
       Compiling starknet-crypto v0.6.2
888
       Compiling cairo-lang-starknet-classes v2.8.2
889
       Compiling bincode v2.0.0-rc.3
890
       Compiling xxhash-rust v0.8.12
891
892
       Compiling data-encoding v2.6.0
       Compiling scarb-stable-hash v1.0.0
893
       Compiling cairo-vm v1.0.1
894
895
       Compiling cairo-lang-starknet v2.8.2
       Compiling starknet-contract v0.10.0 (github.com/xJonathanLEI/starknet-rs?rev=660a732#660a7323)
896
       Compiling snapbox-macros v0.3.10
897
       Compiling starknet-macros v0.2.0 (github.com/xJonathanLEI/starknet-rs?rev=660a732#660a7323)
898
       Compiling ark-secp256r1 v0.4.0
```



```
Compiling ark-secp256k1 v0.4.0
900
       Compiling linkme-impl v0.3.28
       Compiling unicode-width v0.1.13
902
       Compiling similar v2.6.0
903
       Compiling normalize-line-endings v0.3.0
904
       Compiling snapbox v0.4.17
       Compiling console v0.15.8
906
       Compiling linkme v0.3.28
       Compiling cairo-lang-runner v2.8.2
908
909
       Compiling starknet v0.11.0 (github.com/xJonathanLEI/starknet-rs?rev=660a732#660a7323)
       Compiling cairo-lang-macro-attributes v0.1.0
910
       Compiling cairo-lang-macro-stable v1.0.0
911
       Compiling cairo-lang-macro v0.1.0
       Compiling shared v0.1.0 (/home/runner/.cache/scarb/registry/git/checkouts/starknet-foundry-v6206fshfutuo/3817
913
         c903/crates/shared)
       Compiling snforge-scarb-plugin v0.32.0 (/home/runner/.cache/scarb/registry/git/checkouts/starknet-foundry-
914
         v6206fshfutuo/3817c903/crates/snforge-scarb-plugin)
       Finished `release` profile [optimized] target(s) in 9m 52s
Compiling test(lst_unittest) lst v0.1.0 (/home/runner/work/031-KARNOT-LST/031-KARNOT-LST/contractsafteraudit/
915
916
         Scarb.toml)
        Finished `dev` profile target(s) in 11 minutes
917
    Collected 31 test(s) from 1st package
918
    Running 31 test(s) from src/
919
    [PASS] lst::delegator::tests::test_delegator::test_delegator::claim_rewards_contract_paused (gas: ~9341)
920
    [PASS] lst::delegator::tests::test_delegator::test_delegator::claim_rewards_ok (gas: ~9983)
921
    [PASS] lst::delegator::tests::test_delegator::test_delegator::claim_rewards_only_lst_can_call (gas: ~9262)
922
    [PASS] lst::delegator::tests::test_delegator::test_delegator::send_to_withdraw_queue_zero_amount_ok (gas: ~9280)
923
    [PASS] lst::delegator::tests::test_delegator::test_delegator::stake_contract_paused (gas: ~9338)
    [PASS] lst::delegator::tests::test_delegator::test_delegator::stake_ok (gas: ~9867)
925
    [PASS] lst::delegator::tests::test_delegator::test_delegator::stake_only_lst_can_call (gas: ~9259)
    [PASS] lst::delegator::tests::test_delegator::test_delegator::start_delegation_contract_paused (gas: ~9415)
    [PASS] lst::delegator::tests::test_delegator::test_delegator::start_delegation_ok (gas:
928
    [PASS] lst::delegator::tests::test_delegator::test_delegator::start_delegation_only_lst_can_call (gas: ~9258)
929
    [PASS] lst::delegator::tests::test_delegator::test_delegator::start_unstake_intent_contract_paused (gas: ~9334)
930
    [PASS] lst::delegator::tests::test_delegator::test_delegator::start_unstake_intent_not_owner (gas: ~9257)
    [PASS] lst::delegator::tests::test_delegator::test_delegator::start_unstake_intent_intent_in_progress (gas:
932
         ~11877)
    [PASS] lst::delegator::test::test_delegator::test_delegator::test_delegator_reinitialize_should_fail (gas:
933
         ~9263)
    [PASS] lst::delegator::tests::test_delegator::test_delegator::start_unstake_intent_ok (gas: ~11913)
934
    [PASS] lst::delegator::tests::test_delegator::test_delegator::unstake_action_contract_paused (gas: ~9337)
935
    [PASS] lst::delegator::tests::test_delegator::test_delegator::unstake_action_ok (gas: ~39726)
936
    [PASS] lst::lst::tests::test_lst_config::test_lst_additional::test_add_delegator_non_admin (gas: ~1557)
937
    [PASS] lst::lst::tests::test_lst_config::test_lst_additional::test_lst_delegator_funcs (gas: ~2565)
938
    [PASS] lst::lst::tests::test_lst_config::test_lst_additional::test_reinitialize_should_fail (gas:
939
    [PASS] lst::lst::tests::test_lst_config::test_lst_additional::test_set_config_non_admin (gas:
940
    [PASS] lst::lst::tests::test_lst_config::test_lst_additional::test_update_delegator_info_non_admin (gas: ~1557)
941
    [PASS] lst::lst::tests::test_lst_deposit::test_lst_deposit::test_constructor (gas: ~1604)
    [PASS] lst::lst::tests::test_integration::test_integration::test_integration (gas: ~47865)
943
    [PASS] lst::lst::tests::test_lst_deposit::test_lst_deposit::test_deposit_no_fee (gas: ~2027)
    [PASS] lst::lst::tests::test_lst_deposit::test_lst_deposit::test_deposit_with_fee (gas: ~2448)
945
    [PASS] lst::lst::tests::test_lst_mint::test_lst_mint::test_mint_with_fees (gas: ~2374)
946
    [PASS] lst::lst::tests::test_lst_mint::test_lst_mint::test_mint_without_fees (gas: ~1959)
947
948
    [PASS] lst::withdrawal_queue::tests::test_withdrawal_queue::test_withdrawal_queue::
         test_request_withdrawal_invalid_caller (gas: ~2650)
    [PASS] lst::withdrawal_queue::tests::test_withdrawal_queue::test_withdrawal_queue::test_full_withdrawal_queue (
949
         gas: ~5479)
    [PASS] lst::withdrawal_queue::tests::test_withdrawal_queue::test_withdrawal_queue::test_wq_constructor (gas:
950
          ~3265)
    Tests: 31 passed, 0 failed, 0 skipped, 0 ignored, 0 filtered out
951
```