Cyberscope

Audit Report

Egochain

February 2024

Repository	https://github.com/EgorasMarket/Egochain-Blockchain
Commit	e4218e0238e45c391d9fd4cdf2d98686eb21234d
Audited by	© cyberscope

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Review

Repository	https://github.com/EgorasMarket/Egochain-Blockchain
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Audit Updates

Initial Audit	23 Feb 2024

Overview

The Egochain blockchain, as described on its website, is an Evm Compartible Blockchain for Smart Automobiles. It is a public, permissionless Layer 1 blockchain protocol aimed at fast-tracking the global shift to EVs (electric vehicles). It combines Cosmos' rapid transactions and compatibility with Ethereum's developer ecosystem.

Egochain aims to innovate and support the EV technology. Users are rewarded with `EGAX` tokens, which can used for various procedures with the blockchain, such as coverage of EV charging expenses and transaction fees. Lastly, the ecosystem uses the `EGC` token, as well, which serves the role of a debt token.

Audit Scope

The audit scope of the blockchain includes a thorough examination of key areas crucial for functionality and security. The audit primarily concentrates on security vulnerabilities, potential optimizations for performance, code maintainability, and adherence to best coding practices. Additionally, the audit evaluates the robustness of error handling mechanisms, the efficiency of network communication protocols, and the proper use of dependencies and external libraries. Each of these aspects is assessed to ensure the overall reliability and security of Egochain.

Architecture

Egochain is a scalable blockchain that is completely compatible with the Ethereum Virtual Machine. It is built using the Cosmos SDK, in order to achieve benefits, such as high transaction throughput and brief block times. This architecture allows users to perform both Cosmos and EVM formatted transactions and developers to scale EVM dApps cross-chain via IBC.

CLI

Egochain includes an all-in-one command-line interface (CLI). It allows users to run a node, manage wallets and interact with the Egochain network through queries and transactions.

Events

Egochain precompiles emit events when invoked by adding a Log item to the state. This Log structure is composed of several fields: an Address field specifying the precompile's address responsible for the event, Topics for storing event parameters as 32-byte hash indexes, Data for the ABI-encoded event specifics, and BlockNumber indicating the block in which the event occurred. The conversion of event parameters into topics is facilitated by the MakeTopic function.

Gas Usages

The precompiles utilized the RequiredGas function to communicate the necessary gas consumption to go-ethereum, following the conventions set by go-ethereum's native precompiles. This function calculates the gas needed for execution by referencing the standard gas pricing defined within the Cosmos SDK's KVStore.

State management

To monitor state changes, Egochain uses a system of journal logs, which is similar to the go-ethereum journal implementation. Revisions are used to revert the state to a specific point in time, identified by a unique ID and journal index. If an error is encountered, the state reverts to the snapshot captured at the beginning of the transaction. If the transaction is successful, the dirty states are committed to the keeper.

Precompile Vulnerabilities Protection

Egochain precompiles' Run method accepts a readOnly boolean argument which prevents state transitions, when executed via DELEGATECALL, STATICALL, or CALLCODE. Hence, a precompile method that leads to a state transition, determined by the precompiles' IsTransaction method, can only be executed via CALL. Otherwise, the precompile will return an error.

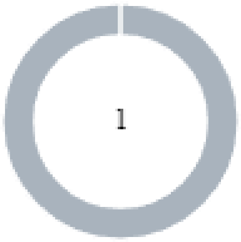
Security and Performance Considerations

Given the nature of the Egochain blockchain, security is paramount. This includes scrutinizing cryptographic implementations, key management, and transaction mechanisms. Performance aspects should also be evaluated, especially in transaction processing and network communication.

Code Quality and Maintainability

Egochain's codebase is reviewed for clarity, maintainability, and adherence to Go's best practices. This includes evaluating the use of modern Go's features, code modularity, and documentation.

Findings Breakdown



●	Critical	0
●	Medium	0
●	Minor / Informative	1

	Severity	Unresolved	Acknowledged	Resolved	Other
●	Critical	0	0	0	0
●	Medium	0	0	0	0
●	Minor / Informative	1	0	0	0

Diagnostics

🔴 Critical 🟠 Medium ● Minor / Informative

Severity	Code	Description	Status
●	TI	Typographical Inconsistencies	Unresolved

TI - Typographical Inconsistencies

Criticality	Minor / Informative
Location	indexer/kv_indexer.go#L60 rpc/backend/blocks.go#L267 rpc/backend/tx_info.go#L355 rpc/types/utils.go#L281
Status	Unresolved

Description

Minor typographical errors were identified across several modules of the project. These inconsistencies, while not impacting the functional integrity of the application or presenting any security vulnerabilities, suggest areas for improvement in terms of code readability. Attention to detail in naming conventions is crucial for maintaining a high standard of code quality, as it enhances the clarity and understanding of the codebase.

```
func TxSucessOrExpectedFailure(res *abci.ResponseDeliverTx) bool {
	return res.Code == 0 || TxExceedBlockGasLimit(res) ||
TxStateDBCommitError(res)
}
```

Recommendation

The correction of these minor typographical errors is recommended, so as to align the blockchain's codebase with best practices for code quality and maintainability.

Summary

The Egochain blockchain is an innovative blockchain on the Cosmos Network. This audit investigates security issues, business logic concerns, potential improvements in performance, and adherence to best coding practices. The codebase review and auditing process revealed no critical findings.

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