

EVEDEX

smart contracts final audit report

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1. Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice at the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the disclaimer below - please make sure to read it in full.

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2. Overview

HashEx was commissioned by the EVEDEX team to perform an audit of their smart contracts. The audit was conducted between 17/06/2025 and 20/06/2025.

The purpose of this audit was to achieve the following:

- Identify potential security issues with smart contracts
- Formally check the logic behind given smart contracts.

Information in this report should be used for understanding the risk exposure of smart contracts, and as a guide to improving the security posture of smart contracts by remediating the issues that were identified.

The code is available at [0xc7dEfc896E1Dd9D98AEa402d928C78c0FD1dc36C](#) (Multicall3), [0x77075c627e51145d54e4EDD54Afa169DA7ff8A17](#) (Treasury proxy) with implementation at [0xbe0a8FB9F5943f547d0A3DC06eE5e478C76Dda52](#) (TreasuryV1), [0x026968b5cED079ECCD6CC78f35a5Dfddc13F9Af8](#) (Vault proxy) with implementation at [0x0507389B4cbB043E6d0137B70c40Fc2BE483919B](#) (VaultV2), [0x0a9591c64Fd9e8C1f9A81DB1B668a5f211b5735A](#) (CashbackVault proxy) with implementation at [0x86dC076BC83044EEbb99a03015B9e130D72e6197](#) (CashbackVaultV1), [0xEB71A9c02c1F68A9D7004e74e17c7d62C3291Bf8](#) (GovernorMultisig), [0x21F69c75d757164137044b235663FeC8beC404E5](#) (Storage) in the Eventum mainnet and at [0x66208B370a58812533EC7aa6971B9702B1e58cC8](#) (EHMarket proxy) with implementation at [0xc9bf97Efb7E33699904e80aF7c3Ee730770440ed](#) (EHMarketV2) in the Eventum testnet.

The code is also available in the @evedex-official/solidity-contracts GitHub repo after [192ba94](#) commit and in the @evedex-official/exchange-ehmarket repo after the [6a1b184](#) commit.

Update. The EVEDEX team has responded to this report. The updated code is available in the same repositories after the commit [0a05b0e](#) and [f2186e2](#). Cashback vault implementation was deployed to [0x6282f3821615A894012126DF8Bb78bBD9251B849](#). EHMarketV2 proxy

was deployed to [0x1DC14e4261eCd7747Cbf6D2C8538a73371405D76](https://evedex.com/0x1DC14e4261eCd7747Cbf6D2C8538a73371405D76) and it's implementation to [0x80AF2ee95f5e40251f2C759a04908a21E3272038](https://evedex.com/0x80AF2ee95f5e40251f2C759a04908a21E3272038) in the Eventum Mainnet.

2.1 Summary

Project name	EVEDEX
URL	https://evedex.com/
Platform	Eventum Network
Language	Solidity
Centralization level	● High
Centralization risk	● Low

2.2 Contracts

Name	Address
EHMarketV2	0x1DC14e4261eCd7747Cbf6D2C8538a73371405D76
VaultV2	0x026968b5cED079ECCD6CC78f35a5Dfddc13F9Af8
CashbackVaultV1	0x0a9591c64Fd9e8C1f9A81DB1B668a5f211b5735A
TreasuryV1	0x77075c627e51145d54e4EDD54Afa169DA7ff8A17
Storage	0x21F69c75d757164137044b235663FeC8beC404E5
GovernorMultisig	0xEB71A9c02c1F68A9D7004e74e17c7d62C3291Bf8
Multiownable	0xEB71A9c02c1F68A9D7004e74e17c7d62C3291Bf8

Multicall3

0xc7dEfc896E1Dd9D98AEa402d928C78c0FD1dc36C

3. Project centralization risks

The contracts Treasury, Vault, CashbackVault, and Storage are highly centralized. The owner can transfer out funds and update crucial parameters, that may break interaction between contracts of the project.

We recommend securing the ownership with a multisig contract.

EVEDEX team comment

EVEDEX is committed to a structured decentralization roadmap comprised of three phases. Presently, the platform operates in Phase 1: client assets are held exclusively in an autonomous smart-contract vault, and no exchange-controlled user hot wallets exist. Launching at this interim decentralization level enables us to deliver a competitive product to market rapidly while maintaining on-chain custody.

Phase 2 will introduce contracts that autonomously execute position liquidations and facilitate non-custodial withdrawals. Development on these modules is ongoing; preliminary code and architecture are publicly available in our corporate repository (<https://github.com/evedex-official/exchange-contracts>).

In Phase 3, administrative privileges over all core contracts will transition to DAO governance, completing the decentralization process and eliminating centralized control vectors. This phased approach ensures progressive risk reduction and transparent evolution toward full community stewardship.

CbbCR4b Governance risks

The accounts with DEFAULT_ADMIN_ROLE can withdraw all available funds.

The accounts with MATCHER_ROLE can withdraw funds within configured limits. Total amount is not limited, and funds can be drained over time.

The contract is designed to be upgradeable by the owner of the ProxyAdmin contract.

Recommendations

Recommendation

Secure all DEFAULT_ADMIN_ROLE accounts with a multisig contracts.

Establish off-chain monitoring to prevent siphoning funds by MATCHER_ROLE accounts.

CbcCR4a Governance risks

The owner of the Storage contract can authorize an arbitrary address as distributor for the VaultV2 contract.

The owner can withdraw all contract's balance, including already distributed yet not withdrawn funds.

The contract is designed to be upgradeable by the owner of the ProxyAdmin contract.

Recommendations

Recommendation

Secure the ownership with a multisig contract.

CbdCR46 Owner privileges

The owner can withdraw all available funds.

The owner of ProxyAdmin contract can upgrade implementation logic.

Recommendations

Recommendation

Secure the ownership with a multisig contract.

CbeCR49 Owner privileges

All the contract's methods can be called only by the owner.

The contract is designed to be upgradeable by the owner of the ProxyAdmin contract.

Recommendations

Recommendation

Secure the ownership with a multisig contract.

CbfCR47 Owner privileges

The owner is responsible for maintaining stored parameters.

Recommendations

Recommendation

Secure the ownership with a multisig contract.

Cc0CR48 Governance risks

Any **howManyOwnersDecide** number of owners can execute an arbitrary transaction, including ownership transfer.

Recommendations

Recommendation

Configure multisig appropriately to reduce risk of losing ownership. Increase number of independent owners.

4. Found issues



● Low	8 (80%)
● Info	2 (20%)



Cbb. EHMarketV2

ID	Severity	Title	Status
CbbI70	● Low	Lack of authorization model	👁 Acknowledged
CbbI72	● Low	Matcher role overrides admin role	✅ Resolved
CbbI6f	● Low	Gas optimizations	🔧 Partially fixed
CbbI71	● Info	Initialization problem	✅ Resolved





Cbd. CashbackVaultV1

ID	Severity	Title	Status
CbdI76	● Low	Lack of domain separator in signature verification	👁 Acknowledged
CbdI6e	● Low	The signer address can't be updated	✅ Resolved
CbdI75	● Info	Misleading function name withdrawCrumbs	👁 Acknowledged

Cbf. Storage

ID	Severity	Title	Status
Cbf177	 Low	Lack of zero value checks	 Acknowledged

Cc2. Multicall3

ID	Severity	Title	Status
Cc2173	 Low	tryBlockAndAggregate always returns a zero block hash	 Acknowledged
Cc2174	 Low	Misleading block information	 Acknowledged

5. Contracts

Cbb. EHMarketV2

Overview

A token holding contract that allows users to deposit fixed ERC20 tokens. Withdrawing is allowed only for addresses with the `MATCHER_ROLE` or `DEFAULT_ADMIN_ROLE` roles. Withdraw limits can be configured for individual users and/or for total withdrawn amount for given periods. Withdraw limits are applied only for `MATCHER_ROLE`, but not for `DEFAULT_ADMIN_ROLE`.

Issues

CbbI70 Lack of authorization model

 Low Acknowledged

The `migrateToV2()` function is open for public use.

CbbI72 Matcher role overrides admin role

 Low Resolved

Withdrawing process is restricted to accounts with the `MATCHER_ROLE` and `DEFAULT_ADMIN_ROLE`. However, if the caller possesses both these roles, the matcher's limits are applied despite the default admin should be exempted from checks.

```
function withdrawAsset(address from, uint256 amount, uint256 requestId) external {
    bool isMatcher = hasRole(MATCHER_ROLE, _msgSender());
    require(isMatcher || hasRole(DEFAULT_ADMIN_ROLE, _msgSender()), UnauthorizedSigner());
    if (isMatcher) {
        _checkWithdrawLimits(amount, from);
        ...
    }
    ...
}
```

Cbbl6f Gas optimizations

● Low

🔄 Partially fixed

1. Multiple reads from storage in the `getMaxWithdrawAmount()` function: `withdrawLimits.length` variable. **Update**: fixed.
2. The `getMaxWithdrawAmount()` function calls `getTotalWithdraw()` and `getUserTotalWithdraw()` functions in a cycle to calculate withdrawn amounts by hours. The withdraw limits don't overlap and sorted in ascending order, so calculations of `totalWithdrawn` and `userWithdrawn` amounts can be optimized to exclude multiple reading of the same data from storage. **Update**: fixed.
3. Multiple reads from storage in the `_checkWithdrawLimits()` function: `withdrawLimits.length` variable. **Update**: fixed.
4. Multiple reads from storage in the `_setWithdrawLimits()` function: `withdrawLimits`, `withdrawLimits.length` variables.
5. Array sorting in the `_setWithdrawLimits()` function is ineffective, it should either use in-memory sorting or be omitted completely in favor of requiring the input data to be sorted. **Update**: fixed.

Cbbl71 Initialization problem

● Info

✅ Resolved

The `initialize()` is unusable if the contract is used as an upgrade. Consider using `Initializable.reinitializer` modifier to replace the `migrateToV2()` function and the `Initializable._getInitializedVersion()` to replace `migratedToV2` getter.

Cbc. VaultV2

Overview

A token holder contract that supports token distribution to arbitrary receivers. The `distribute()` function is guarded by

```
Storage.getBool(keccak256(abi.encodePacked("EH:PartnerVault:Distributor:",  
msg.sender))).
```

Cbd. CashbackVaultV1

Overview

A vault contract that allows withdrawing fixed ERC20 tokens with a signed permission by back-end signer address.

Issues

Cbd176 Lack of domain separator in signature verification

 Low Acknowledged

The `withdraw()` function in the CashbackVaultV1 contract uses a signature verification mechanism based on `keccak256(abi.encodePacked(...))` combined with `toEthSignedMessageHash`.

```
function withdraw(  
    address recipient,  
    uint80 requestId,  
    uint256 amount,  
    bytes memory signature  
) external whenNotPaused {  
    bytes32 signedMessage = keccak256(abi.encodePacked(requestId, recipient, amount));  
    if (signedMessage.toEthSignedMessageHash().recover(signature) != signer) {  
        revert CashbackVaultV1InvalidWithdrawSignature();  
    }  
    ...  
}
```

The signed hash is not tied to the specific context of this contract or the blockchain it's deployed on. This lack of a domain separator creates opportunities for replay attacks.

Cbd16e The signer address can't be updated

 Low Resolved

The signer address is used to authorize user's withdrawals by providing signature that includes recipient address and withdrawing amount. However, the signer can't be updated without full upgrade of the contract.

```
/// @dev Address of signer payload for withdraw method.
address public signer;

/// @notice Withdraw tokens.
/// @param recipient Tokens recipient address.
/// @param requestId Withdraw request ID.
/// @param amount Withdrawal token amount.
function withdraw(
    address recipient,
    uint80 requestId,
    uint256 amount,
    bytes memory signature
) external whenNotPaused {
    bytes32 signedMessage = keccak256(
        abi.encodePacked(requestId, recipient, amount)
    );
    if (
        signedMessage.toEthSignedMessageHash().recover(signature) != signer
    ) {
        revert CashbackVaultV1InvalidWithdrawSignature();
    }
    if (request[requestId]) {
        revert CashbackVaultV1WithdrawAlreadyCompleted();
    }

    request[requestId] = true;
    IERC20(token).safeTransfer(recipient, amount);
    emit CashbackWithdraw(recipient, requestId, amount);
}
```

CbdI75 Misleading function name `withdrawCrumbs` ● Info ☑ Acknowledged

The `withdrawCrumbs()` function name implies that this function is for withdrawing small, leftover amounts of tokens ("dust" or "crumbs") that might be stuck in the contract.

However, its implementation is an unrestricted `onlyOwner` withdrawal function that can transfer any amount of the contract's token balance to any specified address.

Cbe. TreasuryV1

Overview

A token holder contract with a single owner.

Cbf. Storage

Overview

A contract to store project config. Supports `uint`, `int`, `bool`, `address`, `bytes`, and `string` values indexed by `bytes32` keys.

Issues

CbfI77 Lack of zero value checks ● Low ☑ Acknowledged

The contract provides separate methods for deleting data in mappings by key. However, the setter functions do not check whether the provided value is zero. This could lead to unintended data deletion if a zero value is mistakenly passed to a setter. We recommend adding checks to prevent zero values from being set, in order to avoid accidental data deletion.

Cc0. GovernorMultisig

Overview

A multisig contract based on Multiownable contract. Supports batched arbitrary calls guarded with threshold decision of owners.

Cc1. Multiownable

Overview

A fork of Multiownable contract by BitClave, available in [@bitclave/Multiownable](#) repo. Supports flexible multisig operations with or without threshold.

Cc2. Multicall3

Overview

A fork of Matt Solomon's Multicall3 available in [@mds1/multicall3](#) repo.

Issues

Cc2i73 **tryBlockAndAggregate always returns a zero block hash** ● Low ☑ Acknowledged

The **tryBlockAndAggregate()** function calculates blockHash using blockhash(block.number). Per the EVM specification, **blockhash()** of the current block number always returns 0x0.

Cc2i74 **Misleading block information** ● Low ☑ Acknowledged

The contract extensively uses EVM global variables (**block.number**, **blockhash**, **block.difficulty**, **block.coinbase**, **block.gaslimit**) that have different semantics on Eventum network compared to Ethereum L1.

- `getBlockNumber()` returns the L1 block number, not the L2 block number.
- `getCurrentBlockDifficulty()` returns a constant 1.
- `getCurrentBlockCoinbase()` returns a constant sequencer address or the address of the delayed message's poster.
- `getCurrentBlockGasLimit()` returns an artificially large constant.

6. Conclusion

8 low severity issues were found during the audit. 2 low issues were resolved in the update. The reviewed contracts are highly dependent on the owner's account. See the centralization risks chapter. This audit includes recommendations on code improvement and the prevention of potential attacks.

Appendix A. Issues' severity classification

- **Critical.** Issues that may cause an unlimited loss of funds or entirely break the contract workflow. Malicious code (including malicious modification of libraries) is also treated as a critical severity issue. These issues must be fixed before deployments or fixed in already running projects as soon as possible.
- **High.** Issues that may lead to a limited loss of funds, break interaction with users, or other contracts under specific conditions. Also, issues in a smart contract, that allow a privileged account the ability to steal or block other users' funds.
- **Medium.** Issues that do not lead to a loss of funds directly, but break the contract logic. May lead to failures in contracts operation.
- **Low.** Issues that are of a non-optimal code character, for instance, gas optimization tips, unused variables, errors in messages.
- **Informational.** Issues that do not impact the contract operation. Usually, informational severity issues are related to code best practices, e.g. style guide.

Appendix B. Issue status description

- ✔ **Resolved.** The issue has been completely fixed.
- 🔄 **Partially fixed.** Parts of the issue have been fixed but the issue is not completely resolved.
- 🕒 **Acknowledged.** The team has been notified of the issue, no action has been taken.
- ❓ **Open.** The issue remains unresolved.

Appendix C. List of examined issue types

- Business logic overview
- Functionality checks
- Following best practices
- Access control and authorization
- Reentrancy attacks
- Front-run attacks
- DoS with (unexpected) revert
- DoS with block gas limit
- Transaction-ordering dependence
- ERC/BEP and other standards violation
- Unchecked math
- Implicit visibility levels
- Excessive gas usage
- Timestamp dependence
- Forcibly sending ether to a contract
- Weak sources of randomness
- Shadowing state variables
- Usage of deprecated code

Appendix D. Centralization risks classification

Centralization level

- **High.** The project owners can manipulate user's funds, lock user's funds on their will (reversible or irreversible), or maliciously update contracts parameters or bytecode.
- **Medium.** The project owners can modify contract's parameters to break some functions of the project contract or contracts, but user's funds remain withdrawable.
- **Low.** The contract is trustless or its governance functions are safe against a malicious owner.

Centralization risk

- **High.** Lost ownership over the project contract or contracts may result in user's losses. Contract's ownership belongs to EOA or EOAs, and their security model is unknown or out of scope.
- **Medium.** Contract's ownership is transferred to a contract with not industry-accepted parameters, or to a contract without an audit. Also includes EOA with a documented security model, which is out of scope.
- **Low.** Contract's ownership is transferred to a well-known or audited contract with industry-accepted parameters.

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