



Smart contracts security assessment

Final report

[Tariff: Standard](#)

Brilliant Coin

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Introduction

The report has been prepared for **Brilliant Coin**.

The code is available at the [@bebrilliant1/brilliantcoin](https://github.com/bebrilliant1/brilliantcoin) GitHub repository and was audited after the commit [7a501b2a8db8170644367ad5d688ea1251470e72](https://github.com/bebrilliant1/brilliantcoin/commit/7a501b2a8db8170644367ad5d688ea1251470e72). A recheck was done after the commit [c896e961a89bd6cff750910f13f41b2fa247d0f8](https://github.com/bebrilliant1/brilliantcoin/commit/c896e961a89bd6cff750910f13f41b2fa247d0f8)

The scope of the audit is the following smart contracts:

- BrilliantOracle.sol
- BrilliantReferralManager.sol
- BrilliantStaking.sol

Name	Brilliant Coin
Audit date	2025-08-19 - 2025-08-20
Language	Solidity
Platform	Base Chain

Contracts checked

Name	Address
BrilliantOracle	
BrilliantStaking	
BrilliantReferralManager	

Procedure

We perform our audit according to the following procedure:

Automated analysis

- Scanning the project's smart contracts with several publicly available automated Solidity analysis tools
- Manual verification (reject or confirm) all the issues found by the tools

Manual audit

- Manually analyze smart contracts for security vulnerabilities
- Smart contracts' logic check

Known vulnerabilities checked

Title	Check result
<u>Unencrypted Private Data On-Chain</u>	passed
<u>Code With No Effects</u>	passed
<u>Message call with hardcoded gas amount</u>	passed
<u>Typographical Error</u>	passed
<u>DoS With Block Gas Limit</u>	passed
<u>Presence of unused variables</u>	passed
<u>Incorrect Inheritance Order</u>	passed
<u>Requirement Violation</u>	passed
<u>Weak Sources of Randomness from Chain Attributes</u>	passed
<u>Shadowing State Variables</u>	passed

<u>Incorrect Constructor Name</u>	passed
<u>Block values as a proxy for time</u>	passed
<u>Authorization through tx.origin</u>	passed
<u>DoS with Failed Call</u>	passed
<u>Delegatecall to Untrusted Callee</u>	passed
<u>Use of Deprecated Solidity Functions</u>	passed
<u>Assert Violation</u>	passed
<u>State Variable Default Visibility</u>	passed
<u>Reentrancy</u>	passed
<u>Unprotected SELFDESTRUCT Instruction</u>	passed
<u>Unprotected Ether Withdrawal</u>	passed
<u>Unchecked Call Return Value</u>	passed
<u>Floating Pragma</u>	passed
<u>Outdated Compiler Version</u>	passed
<u>Integer Overflow and Underflow</u>	passed
<u>Function Default Visibility</u>	passed

Classification of issue severity

High severity

High severity issues can cause a significant or full loss of funds, change of contract ownership, major interference with contract logic. Such issues require immediate attention.

Medium severity

Medium severity issues do not pose an immediate risk, but can be detrimental to the client's reputation if exploited. Medium severity issues may lead to a contract failure and can be fixed by modifying the contract state or redeployment. Such issues require attention.

Low severity

Low severity issues do not cause significant destruction to the contract's functionality. Such issues are recommended to be taken into consideration.

Issues

High severity issues

1. The owner can mint arbitrary number of Brilliant tokens (BrilliantStaking)

Status: Acknowledged

The BrilliantStaking contract allows the owner to set an arbitrary `referralManager` address via the `setReferralManager()` function. The `claimReferralRewards()` function then calls `referralManager.claimReferralRewards(msg.sender)` to determine the amount of BrilliantToken to mint for the caller. Crucially, the BrilliantStaking contract blindly trusts the uint256 value returned by the external `referralManager.claimReferralRewards()` call and uses this value directly in `brilliantToken.mint(msg.sender, pending)`.

```
function claimRewards() external payable nonReentrant {
    UserInfo storage user = userInfo[msg.sender];

    // Update pool
    updateAccRewards();

    // Calculate pending rewards
    uint256 pending = ((user.amount + user.vestedAmount) * accBrilliantPerShare /
ACC_PRECISION) - user.rewardDebt;
    pending += user.pendingRewards;

    // Check if rewards exceed minimum threshold
    require(pending >= minClaimThreshold, "GenStaking: Claim amount below min");

    // Calculate and distribute referral rewards
    if (pending > 0) {
        // Process the fee
        uint256 refundAmount = _checkAndProcessFee(pending);
```

```
// Refund any excess fee
if (refundAmount > 0) {
    (bool refundSuccess,) = msg.sender.call{ value: refundAmount }("");
    require(refundSuccess, "GenStaking: Refund failed");
}

user.pendingRewards = 0;
user.rewardDebt = (user.amount + user.vestedAmount) *
accBrilliantPerShare / ACC_PRECISION;

// Mint BRILL tokens as rewards
brilliantToken.mint(msg.sender, pending);

// Process referral rewards if referral manager is set
if (address(referralManager) != address(0)) {
    referralManager.processRewardClaim(msg.sender, pending);
}

emit RewardClaimed(msg.sender, pending);
}
}
```

By setting a malicious referralManager smart contract the owner can mint any number of Brilliant tokens to a specified address.

Since the referralManager can only be set once, there is no risk of manipulation after it has been assigned to the correct contract address.

Medium severity issues

1. Reward claims can be blocked by the contract owner (BrilliantStaking)

Status: Acknowledged

The contract allows the owner to set a referralManager address via the `setReferralManager()` function.

The

`claimRewards()` function attempts to process referral rewards by calling `referralManager.processRewardClaim(msg.sender, pending)` if address of referral manager contract is not a zero address. Setting it, for example, for an EOA address will effectively block all reward claims. **Since the referralManager can only be set once, there is no risk of manipulation after it has been assigned to the correct contract address.**

Low severity issues

1. Misleading errors (BrilliantStaking)

Status: Fixed

The error messages in the BrilliantStaking contract are misleading as they incorrectly use the prefix "GenStaking" instead of "BrilliantStaking".

Conclusion

Brilliant Coin BrilliantOracle, BrilliantStaking, BrilliantReferralManager contracts were audited. 1 high, 1 medium, 1 low severity issues were found.

1 low severity issue has been fixed in the update.

Privileged roles have extensive control over the protocol's core functions and funds. To address this, we recommend implementing robust security practices, including the use of multi-signature wallets, timelocks, and hardware wallets for privileged accounts management. Users are required to trust that the administrators that these accounts are properly secured and will not act maliciously.

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