

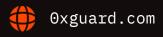
# Smart contracts security assessment

Final report

Fariff: Standard

**Brilliant Coin** 

August 2025





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# □ Introduction

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

The code is available at the <u>@bebrilliant1/brilliantcoin</u> GitHub repository and was audited after the commit <u>7a501b2a8db8170644367ad5d688ea1251470e72</u>. A recheck was done after the commit <u>c896e961a89bd6cff750910f13f41b2fa247d0f8</u>

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

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

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Outdated Compiler Version	passed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

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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 tokes (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);
}
```

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```
// 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.

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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".

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# 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 priviledged 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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### **O** Disclaimer

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