

Web3 Security Researcher:



Rosario Borgesi

Blockchain Engineer

collectFee & reentrancy: Transfer the owner's balance (not contract balance) and update it first using the CEI pattern.

Safety & simplification: Replace all transfer with call and avoid unnecessary uint256 < 0 checks.

✗ BUG

Vault.sol

```
function withdraw(uint value) external {
    if (payment[msg.sender] <= value) revert("insufficient balance");
    // ✗ BUG-2
    payable(msg.sender).transfer(value);
}
```

```
function collectFee() external onlyOwner {
    if (payment[msg.sender] <= 0) revert("insufficient balance");
    // ✗ BUG-1,2
    payable(msg.sender).transfer(address(this).balance);
}
```

✓ FIX

Vault.sol

```
function withdraw(uint value) external nonReentrant {
    // ✓ FIX-2
    (bool success, ) = payable(msg.sender).call{value: value}("");
    if (!success) revert TransferFailed();
```

```
}

function collectFee() external onlyOwner {
    uint256 amount = payment[msg.sender];
    if (amount == 0) revert insufficientBalance();
    // ✓ FIX-1,2
    payment[msg.sender] = 0;
    (bool success, ) = payable(msg.sender).call{value: amount}("");
    if (!success) revert TransferFailed();
    emit feeCollected(amount, msg.sender);
}
```



FIX: Selected key fixes from several important suggestions