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MRdoulestar Update images

History

1 contributor

60 lines (43 sloc) 2.39 KB

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LNCToken

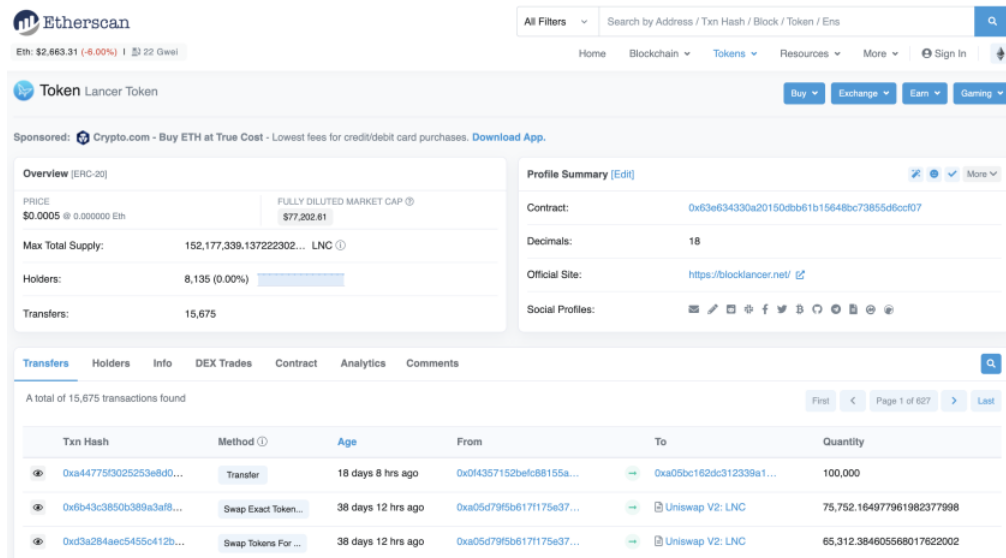
<https://etherscan.io/address/0x63e634330a20150dbb61b15648bc73855d6ccf07#code>

Figure 1. LNC Token Information

Integer Overflow

```
/// allows to transfer token to another address
function transfer(address _to, uint256 _value) returns (bool success) {
    // Don't allow in funding state
    if(funding) throw;
    if(!allowTransfer)throw;

    var senderBalance = balances[msg.sender];
    //only allow if the balance of the sender is more than he want's to send
    if (senderBalance >= _value && _value > 0) {
        //reduce the sender balance by the amount he sends
        senderBalance -= _value;
        balances[msg.sender] = senderBalance;

        //increase the balance of the receiver by the amount we reduced the balance of the sender
        balances[_to] += _value;

        //saves the last time someone sent Lnc from this address
        //is needed for our Token Holder Tribunal
        //this ensures that everyone can only vote one time
        //otherwise it would be possible to send the LNC around and everyone votes again and again
        lastTransferred[msg.sender]=block.timestamp;
        Transfer(msg.sender, _to, _value);
        return true;
    }
    //transfer failed
    return false;
}
```

If calls this function with a large `_value`, which is smaller than the senderBalance but the sum of `(balances[_to]+_value) > 2^256`, it will cause an integer overflow at line `(balances[_to] += _value;)` and finally change the balance of receiver's accounts to a smaller number(caused by overflow). This integer overflow vulnerability allows sender to cause unexpected economic losses.

The founder should check the sum of `(balances[_to]+_value)` before changing the balances of sender and receiver, such as `'if (balances[_to] < balances[_to] + _value) throw;'`.

```
function addToken(address invest,uint256 value){
    if(msg.sender!=master)throw;
```

```

        balances[invest]+=value;
        totalTokens+=value;
    }
}

```

The similar Integer Overflow vulnerability in addToken function. This vulnerability allows owner to add token to users. However, the unlimited value can change balance of user to zero.

Exploit

The screenshot shows the Remix IDE interface. On the left, the Solidity code for the BlocklancerToken contract is displayed. The `addToken` function is highlighted, which takes an `address invest` and a `uint256 value` as parameters. The function increments the `balances[invest]` by the provided `value` and also increments `totalTokens`. The right-hand side of the interface shows the 'addToken' transaction form. The 'invest' field is set to `0x583031d1113ad41402576bd6afabf3021` and the 'value' field is set to `8000`. Below the transaction form, the 'balanceOf' function is called for the same address, showing a result of `0: uint256: balance 8000`.

*Figure 2. The Result of addToken() to target account.

This screenshot shows the same Remix IDE interface as Figure 2, but with a different value entered in the 'addToken' transaction form. The 'value' field is now set to `115792089237316195423570985008687901`, which is a very large number. After executing the transaction, the 'balanceOf' function is called again for the same address. The result shows `0: uint256: balance 0`, indicating that the balance has been reset to zero due to the integer overflow.

*Figure 3. The Result of addToken() to attack target account!