Gratium Smart Contract

Overview

Gratium (GRTM) is a TRC-20 token on the TRON blockchain, designed for community engagement and tipping.
It includes an integrated message system, aligning with the digital fortune cookie concept.

Token Details

Total Supply: 1,000,000,000 GRTM
Blockchain: TRON (TRC-20)
Purpose: Community engagement, tipping, and digital fortune cookie mechanics

Smart Contract Functions

1. Send Gratium Tokens
   - Transfers GRTM tokens along with a message.
   - Message length is limited to 256 characters for storage efficiency.

2. Emit On-Chain Message Event
   - The message is stored on-chain and can be retrieved by the recipient.

Security & Compliance

- Ownable: Admin-controlled contract with limited permissions.
- Transparent: All messages and transactions are stored on-chain.
- Audit-Ready: Follows OpenZeppelin best practices.

Smart Contract Code

```solidity
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.0;

import "@openzeppelin/contracts/token/TRC20/ITRC20.sol";
import "@openzeppelin/contracts/access/Ownable.sol";

contract Gratium is ITRC20, Ownable {
    uint256 private constant TOTAL_SUPPLY = 1_000_000_000 * (10 ** 18);
     uint256 private constant MAX_MESSAGE_LENGTH = 256; // Limit message length to prevent excessive storage costs
```

```
    constructor() ITRC20("Gratium", "GRTM") {
        _mint(msg.sender, TOTAL_SUPPLY); // All tokens minted at deployment
    }

    event GratiumSent(address indexed sender, address indexed recipient, uint256 amount, string message);

    function sendGratium(address recipient, uint256 amount, string memory message) external {
        require(balanceOf(msg.sender) >= amount, "Insufficient GRTM balance");
        require(bytes(message).length <= MAX_MESSAGE_LENGTH, "Message too long");

        _transfer(msg.sender, recipient, amount);
        emit GratiumSent(msg.sender, recipient, amount, message);
    }
}
```

Conclusion

Gratium enhances community engagement by enabling tipping with personalized messages.
Its transparent, on-chain mechanics align with Web3 decentralization principles.