Cyberscope

Audit Report

TG.Bet Token

January 2024

SHA256 4ce1ce44bb0928a620311df7bf09d610ba08daa07ed4aa12e36aca195c3b82e0

Audited by © cyberscope

Analysis

● Critical ● Medium ● Minor / Informative ● Pass

Severity	Code	Description	Status
●	ST	Stops Transactions	Unresolved
●	OTUT	Transfers User's Tokens	Passed
●	ELFM	Exceeds Fees Limit	Passed
●	MT	Mints Tokens	Passed
●	BT	Burns Tokens	Passed
●	BC	Blacklists Addresses	Passed

Diagnostics

🔴 Critical 🟠 Medium ● Minor / Informative

Severity	Code	Description	Status
●	CCR	Contract Centralization Risk	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L16	Validate Variable Setters	Unresolved

Table of Contents

Review

Contract Name	TGBToken
Testing Deploy	https://testnet.bscscan.com/address/0x90641dbc60ca02efc46fe225841cb26d289472ec
Symbol	TGB
Decimals	18

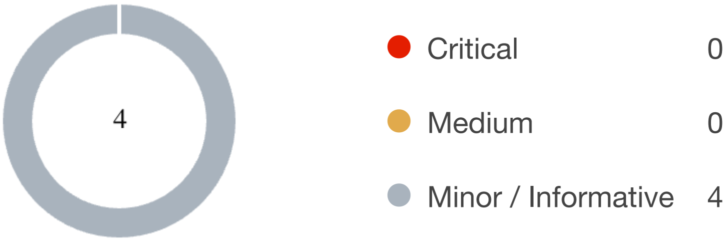
Audit Updates

Initial Audit	09 Jan 2024

Source Files

Filename	SHA256
contracts/TGBToken.sol	4ce1ce44bb0928a620311df7bf09d610ba08daa07ed4aa12e36aca195c3b82e0
@openzeppelin/contracts/utils/Context.sol	b2cfee351bcafd0f8f27c72d76c054df9b571b62cfac4781ed12c86354e2a56c
@openzeppelin/contracts/token/ERC20/IERC20.sol	7ebde70853ccafcf1876900dad458f46eb9444d591d39bfc58e952e2582f5587
@openzeppelin/contracts/token/ERC20/ERC20.sol	d20d52b4be98738b8aa52b5bb0f88943f62128969b33d654fbca731539a7fe0a
@openzeppelin/contracts/token/ERC20/extensions/IERC20Metadata.sol	af5c8a77965cc82c33b7ff844deb9826166689e55dc037a7f2f790d057811990
@openzeppelin/contracts/token/ERC20/extensions/ERC20Burnable.sol	0344809a1044e11ece2401b4f7288f414ea41fa9d1dad24143c84b737c9fc02e
@openzeppelin/contracts/access/Ownable.sol	a8e4e1ae19d9bd3e8b0a6d46577eec098c01fbaffd3ec1252fd20d799e73393b

Findings Breakdown



Severity	Unresolved	Acknowledged	Resolved	Other
● Critical	0	0	0	0
● Medium	0	0	0	0
● Minor / Informative	4	0	0	0

ST - Stops Transactions

Criticality	Minor / Informative
Location	contracts/TGBToken.sol#L24
Status	Unresolved

Description

As part of the launch process, initially, the transfers are disabled for all the users excluding the owner. Once the trades are enabled, they will not be able to stop again.

```
function enableTrading() external onlyOwner {
    require(!tradingEnabled, "TGB: trading already enabled");
    tradingEnabled = true;
    emit TradingEnabled();
}

function _transfer(
...
    if (!tradingEnabled) {
    ...
```

Recommendation

The team should carefully manage the private keys of the owner's account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions. Some suggestions are:

- Introduce a multi-sign wallet so that many addresses will confirm the action.
- Introduce a governance model where users will vote about the actions.

CCR - Contract Centralization Risk

Criticality	Minor / Informative
Location	contracts/TGBToken.sol#L36
Status	Unresolved

Description

The contract's functionality and behavior are heavily dependent on external parameters or configurations. While external configuration can offer flexibility, it also poses several centralization risks that warrant attention. Centralization risks arising from the dependence on external configuration include Single Point of Control, Vulnerability to Attacks, Operational Delays, Trust Dependencies, and Decentralization Erosion.

The contract owner is responsible for setting the proper pair addresses and launcher address. If this functionality abused by the contract owner, then liquidity may be added in the main pairs with different rate than the expected, before the presale process is finalized.

```
function setLauncher(address launcher)
function setPairs(address[] calldata pairs, bool[] calldata status)
```

Recommendation

To address this finding and mitigate centralization risks, it is recommended to evaluate the feasibility of migrating critical configurations and functionality into the contract's codebase itself. This approach would reduce external dependencies and enhance the contract's self-sufficiency. It is essential to carefully weigh the trade-offs between external configuration flexibility and the risks associated with centralization.

L04 - Conformance to Solidity Naming Conventions

Criticality	Minor / Informative
Location	contracts/TGBToken.sol#L9,12
Status	Unresolved

Description

The Solidity style guide is a set of guidelines for writing clean and consistent Solidity code. Adhering to a style guide can help improve the readability and maintainability of the Solidity code, making it easier for others to understand and work with.

The followings are a few key points from the Solidity style guide:

1. Use camelCase for function and variable names, with the first letter in lowercase (e.g., myVariable, updateCounter).
2. Use PascalCase for contract, struct, and enum names, with the first letter in uppercase (e.g., MyContract, UserStruct, ErrorEnum).
3. Use uppercase for constant variables and enums (e.g., MAX_VALUE, ERROR_CODE).
4. Use indentation to improve readability and structure.
5. Use spaces between operators and after commas.
6. Use comments to explain the purpose and behavior of the code.
7. Keep lines short (around 120 characters) to improve readability.

```
address private constant _router =
        0x7a250d5630B4cF539739dF2C5dAcb4c659F2488D
address public _launcher
```

Recommendation

By following the Solidity naming convention guidelines, the codebase increased the readability, maintainability, and makes it easier to work with.
Find more information on the Solidity documentation https://docs.soliditylang.org/en/v0.8.17/style-guide.html#naming-convention.

L16 - Validate Variable Setters

Criticality	Minor / Informative
Location	contracts/TGBToken.sol#L33
Status	Unresolved

Description

The contract performs operations on variables that have been configured on user-supplied input. These variables are missing of proper check for the case where a value is zero. This can lead to problems when the contract is executed, as certain actions may not be properly handled when the value is zero.

```
_launcher = launcher
```

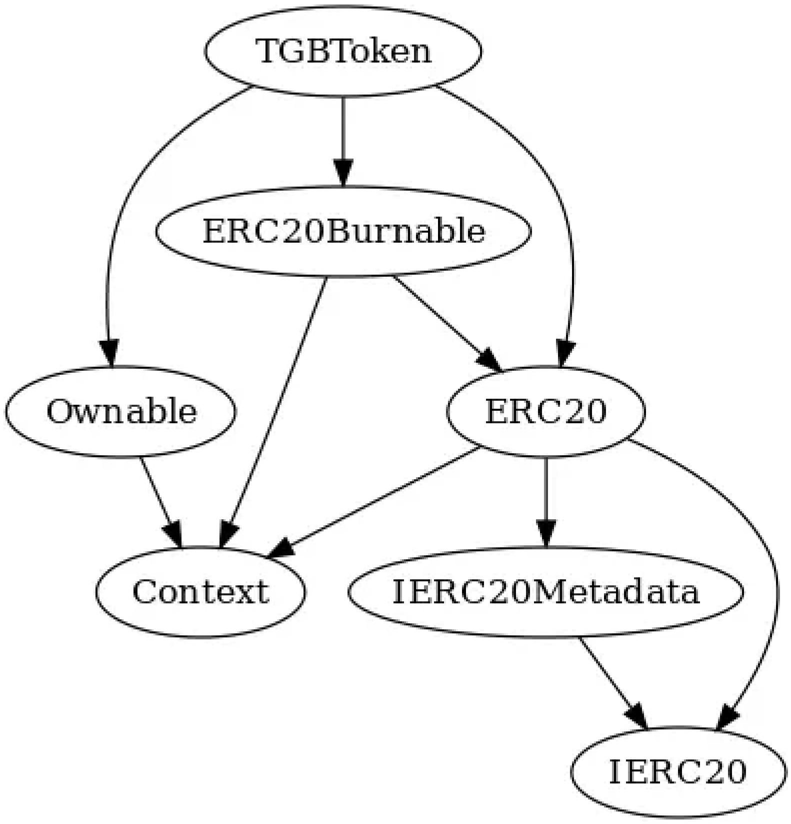
Recommendation

By adding the proper check, the contract will not allow the variables to be configured with zero value. This will ensure that the contract can handle all possible input values and avoid unexpected behavior or errors. Hence, it can help to prevent the contract from being exploited or operating unexpectedly.

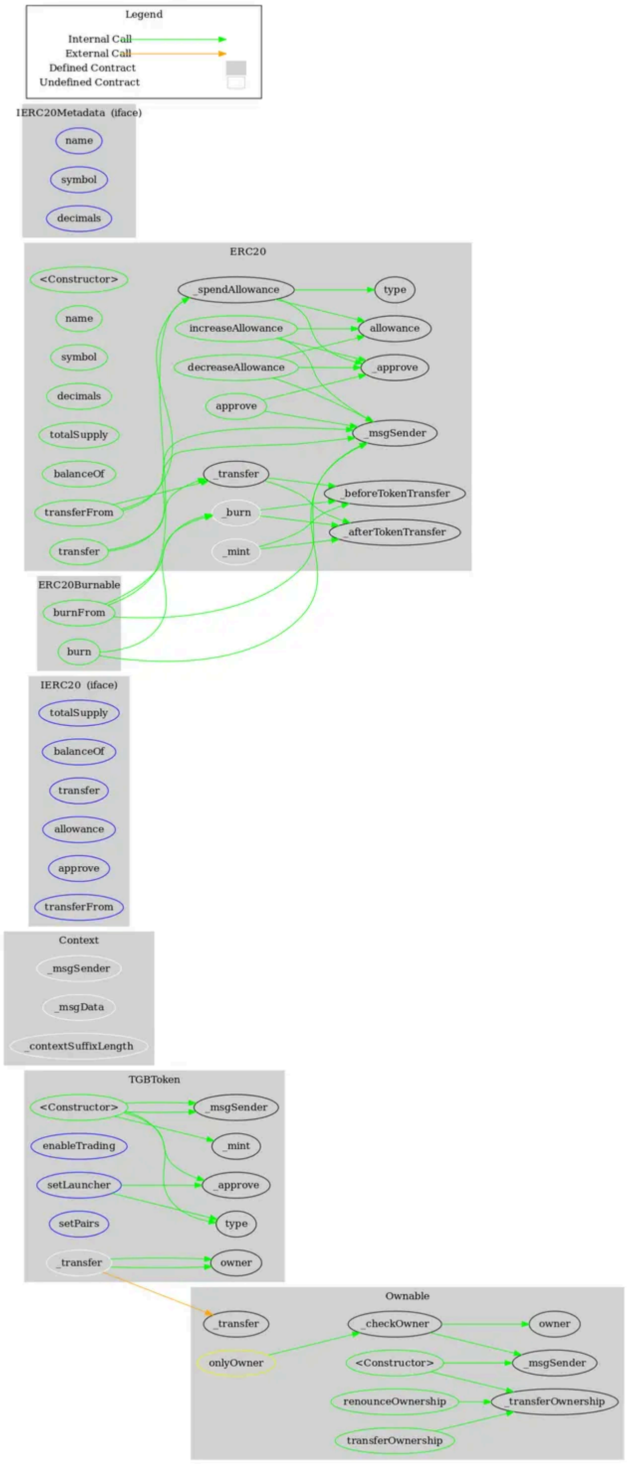
Functions Analysis

Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
TGBToken	Implementation	ERC20, ERC20Burnable, Ownable		
		Public	✓	ERC20
	enableTrading	External	✓	onlyOwner
	setLauncher	External	✓	onlyOwner
	setPairs	External	✓	onlyOwner
	_transfer	Internal	✓	

Inheritance Graph



Flow Graph


Legend
Internal Call
External Call
Defined Contract
Undefined Contract
IERC20Metadata (iface)
name
symbol
decimals
ERC20
<Constructor>
name
symbol
decimals
totalSupply
balanceOf
transferFrom
transfer
_spendAllowance
increaseAllowance
decreaseAllowance
approve
_transfer
_burn
_mint
type
allowance
_approve
_msgSender
_beforeTokenTransfer
_afterTokenTransfer
ERC20Burnable
burnFrom
burn
IERC20 (iface)
totalSupply
balanceOf
transfer
allowance
approve
transferFrom
Context
_msgSender
_msgData
_contextSuffixLength
TGBToken
<Constructor>
enableTrading
setLauncher
setPairs
_transfer
_msgSender
_mint
_approve
type
owner
Ownable
_transfer
onlyOwner
_checkOwner
<Constructor>
renounceOwnership
transferOwnership
owner
_msgSender
_transferOwnership

Summary

TG.Bet token contract implements a token mechanism. The TGBToken is an ERC-20 compliant cryptocurrency implemented in Solidity. The token is initialized with a maximum supply, and the contract owner has the authority to enable trading once, set a launcher address, and define specific pairs with trading status. This audit investigates security issues, business logic concerns and potential improvements.

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The Cyberscope team

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