SCRL

Full Audit Report

TeddyPuff Token Security Assessment

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TeddyPuff Token Security Assessment

FULL AUDIT REPORT

Security Assessment by SCRL on **Wednesday, February 5, 2025**

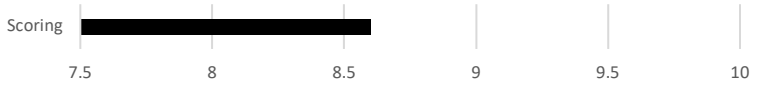
SCRL is deliver a security solution for Web3 projects by expert security researchers.

Executive Summary

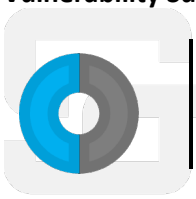
For this security assessment, SCRL received a request on Tuesday, February 4, 2025

Client	Language	Audit Method	Confidential	Network Chain	Contract
TeddyPuff Token	**Solidity**	**Whitebox**	**Public**	**BNB Chain & Ethereum**	**BNB:** 0xE5744f31DfcBCEc7295771903EBCB22e96E0CB86 **ETH:** 0xE5744f31DfcBCEc7295771903EBCB22e96E0CB86
Report Version	**Twitter**		**Telegram**		**Website**
1.1	https://x.com/teddypufftoken		https://t.me/teddypufftoken		https://teddypufftoken.com/

Scoring:



Vulnerability Summary



4	4	0	0	0	0
Total Findings	Unresolved	Resolved	Mitigate	Acknowledge	Decline

▪	0	Critical	Critical severity is assigned to security vulnerabilities that pose a severe threat to the smart contract and the entire blockchain ecosystem.
▪	0	High	High-severity issues should be addressed quickly to reduce the risk of exploitation and protect users' funds and data.
▪	0	Medium	It's essential to fix medium-severity issues in a reasonable timeframe to enhance the overall security of the smart contract.
▪	0	Low	While low-severity issues can be less urgent, it's still advisable to address them to improve the overall security posture of the smart contract.
▪	0	Very Low	Very Low severity is used for minor security concerns that have minimal impact and are generally of low risk.
▪	2	Informational	2 unresolved — Used to categorize security findings that do not pose a direct security threat to the smart contract or its users. Instead, these findings provide additional information, recommendations
▪	2	Gas-optimization	2 unresolved — Suggestions for more efficient algorithms or improvements in gas usage, even if the current code is already secure.

Audit Scope:

File	SHA-1 Hash
TeddyPuff.sol	ac154986d4366a52ff97fee52c37463c0b7df868

Audit Version History:

Version	Date	Description
1.0	Wednesday, February 5, 2025	Preliminary Report
1.1	Wednesday, February 5, 2025	Full Audit Report

Audit information:

Request Date	Audit Date	Re-assessment Date
Tuesday, February 4, 2025	Wednesday, February 5, 2025	-

Smart Contract Audit Summary

Security Assessment Author

Auditor:	**Mark K.**	[Security Researcher | Redteam]
	Kevin N.	[Security Researcher | Web3 Dev]
	Yusheng T.	[Security Researcher | Incident Response]
Document Approval:	**Ronny C.**	CTO & Head of Security Researcher
	Chinnakit J.	CEO & Founder

Digital Sign

ID: B4DC9DD3-A216-4406-9173-2C3BADE5A816
Digitally signed by <contact@scrl.io>
February 05, 2025 06:24 PM +07

Disclaimer

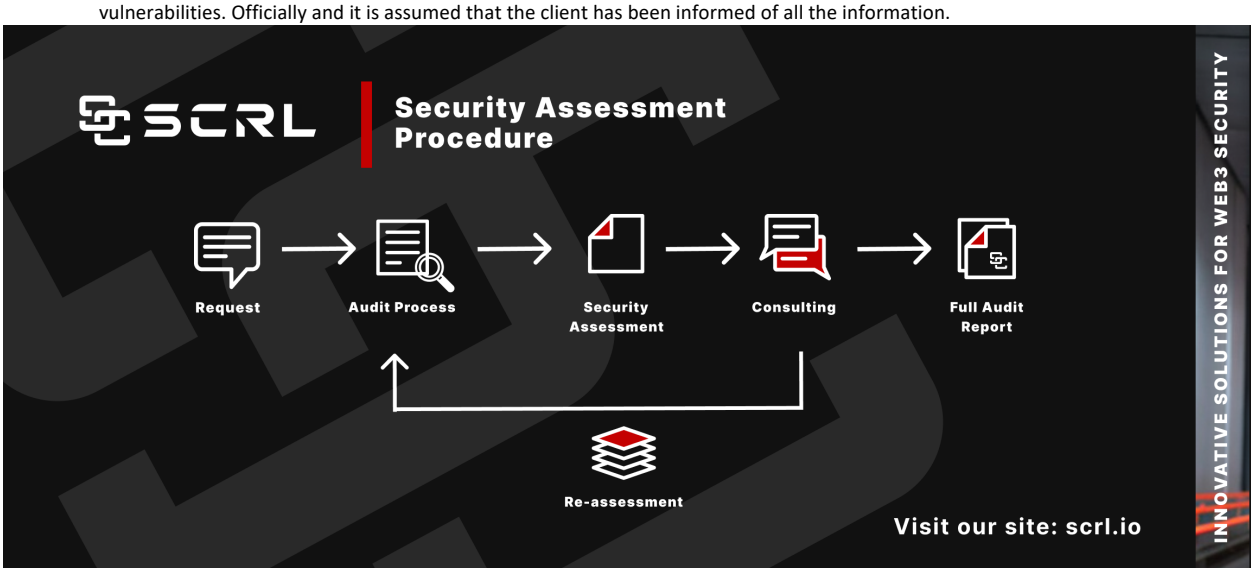
Regarding this security assessment, there are no guarantees about the security of the program instruction received from the client is hereinafter referred to as "**Source code**".
And **SCRL** hereinafter referred to as "**Service Provider**", the **Service Provider** will not be held liable for any legal liability arising from errors in the security assessment. The responsibility will be the responsibility of the **Client**, hereinafter referred to as "**Service User**" and the
Service User agrees not to be held liable to the **service provider** in any case. By contract
Service Provider to conduct security assessments with integrity with professional ethics, and transparency to deliver security assessments to users The **Service Provider** has the right to postpone the delivery of the security assessment. If the security assessment is delayed whether caused by any reason and is not responsible for any delayed security assessments.
If **the service provider** finds a vulnerability The **service provider** will notify the **service user** via the Preliminary Report, which will be kept confidential for security. The **service provider** disclaims responsibility in the event of any attacks occurring whether before conducting a security assessment. Or happened later All responsibility shall be sole with the **service user**.

Security Assessment Is Not Financial/Investment Advice Any loss arising from any investment in any project is the responsibility of the investor.

SCRL disclaims any liability incurred. Whether it's Rugpull, Abandonment, Soft Rugpull, Exploit, Exit Scam.

Security Assessment Procedure

1. **Request** The client must submit a formal request and follow the procedure. By submitting the source code and agreeing to the terms of service.
2. **Audit Process** Check for vulnerabilities and vulnerabilities from source code obtained by experts using formal verification methods, including using powerful tools such as Static Analysis, SWC Registry, Dynamic Security Analysis, Automated Security Tools, CWE, Syntax & Parameter Check with AI ,WAS (Warning Avoidance System a python script tools powered by SCRL).
3. **Security Assessment** Deliver Preliminary Security Assessment to clients to acknowledge the risks and vulnerabilities.
4. **Consulting** Discuss on risks and vulnerabilities encountered by clients to apply to their source code to mitigate risks.
    a. **Re-assessment** Reassess the security when the client implements the source code improvements and if the client is satisfied with the results of the audit. We will proceed to the next step.
5. **Full Audit Report** SCRL provides clients with official security assessment reports informing them of risks and vulnerabilities. Officially and it is assumed that the client has been informed of all the information.



Risk Rating

Risk rating using this commonly defined: $Risk\ rating\ =\ impact\ *\ confidence$

Impact The severity and potential impact of an attacker attack
Confidence Ensuring that attackers expose and use this vulnerability

Confidence Impact [Likelihood]	Low	Medium	High
Low	**Very Low**	**Low**	**Medium**
Medium	**Low**	**Medium**	**High**
High	**Medium**	**High**	**Critical**

Severity is a risk assessment It is calculated from the Impact and Confidence values using the following calculation methods,
$Risk\ rating\ =\ impact\ *\ confidence$
It is categorized into
7 categories severity based

For **Informational** & **Non-class/Optimization/Best-practices will** not be counted as **severity**

Category

Centralization
Centralization Risk is The risk incurred by a sole proprietor, such as the Owner being able to change something without permission

Economics Risk
Economics Risk is Risks that may affect the economic mechanism system, such as the ability to increase Mint token

Logical Issue
Logical Issue is that can cause errors to core processing, such as any prior operations that cause background processes to crash.

Authorization
Authorization is Possible pitfalls from weak coding allows unrelated people to take any action to modify the values.

Mathematical
Mathematical Any erroneous arithmetic operations affect the operation of the system or lead to erroneous values.

Naming Conventions
Naming Conventions naming variables that may affect code understanding or naming inconsistencies

Security Risk
Security Risk of loss or damage if it's no mitigate

Coding Style
Coding Style is Tips coding for efficiency performance

Best Practices
Best Practices is suggestions for improvement

Optimization
Optimization is performance improvement

Gas Optimization
Gas Optimization is increase performance to avoid expensive gas

Dead Code
Dead Code having unused code This may result in wasted resources and gas fees.

Table Of Content

Source Units in Scope

Source Units Analyzed: `1`
Source Units in Scope: `1` (**100%**)

Type	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
📝	src/TeddyPuff.sol	1	———	83	81	56	14	58	💰
📝	**Totals**	**1**	———	**83**	**81**	**56**	**14**	**58**	💰

Legend: [📝]

- **Lines**: total lines of the source unit
- **nLines**: normalized lines of the source unit (e.g. normalizes functions spanning multiple lines)
- **nSLOC**: normalized source lines of code (only source-code lines; no comments, no blank lines)
- **Comment Lines**: lines containing single or block comments
- **Complexity Score**: a custom complexity score derived from code statements that are known to introduce code complexity (branches, loops, calls, external interfaces, ...)

Visibility, Mutability, Modifier function testing

Components

📝Contracts	📚Libraries	🔍Interfaces	🎨Abstract
1	0	0	0

Exposed Functions

This section lists functions that are explicitly declared public or payable. Please note that getter methods for public stateVars are not included.

🌐Public	💰Payable
5	1

External	Internal	Private	Pure	View
3	4	0	0	1

StateVariables

Total	🌐Public
1	0

Capabilities

Solidity Versions observed	🧪 Experimental Features	💰 Can Receive Funds	🖥️ Uses Assembly	💣 Has Destroyable Contracts
^0.8.20		yes		

📩 Transfers ETH	⚡ Low-Level Calls	👥 DelegateCall	🧱 Uses Hash Functions	🪚 ECRecover	🌀 New/Create/Create2

♻️ TryCatch	Σ Unchecked

Dependencies / External Imports

Dependency / Import Path	Count
@openzeppelin/contracts/access/Ownable.sol	1
@openzeppelin/contracts/security/ReentrancyGuard.sol	1
@openzeppelin/contracts/token/ERC20/ERC20.sol	1
@openzeppelin/contracts/token/ERC20/utils/SafeERC20.sol	1

Vulnerability Findings

ID	Vulnerability Detail	Severity	Category	Status
CEN-01	Centralization Risk	Informational	Centralization	**Acknowledge**
CEN-02	Token Distribution	Informational	Centralization	**Acknowledge**
GAS-01	`++i` costs less gas than `i++`, especially when it's used in `for`-loops (`--i`/`i--` too)	Gas-optimization	Gas Optimization	**Acknowledge**
GAS-02	Use != 0 instead of > 0 for unsigned integer comparison	Gas-optimization	Gas Optimization	**Acknowledge**

CEN-01: Centralization Risk

Vulnerability Detail	Severity	Location	Category	Status
Centralization Risk	Informational	Check on finding	Centralization	**Acknowledge**

Finding:

```
File: TeddyPuff.sol

9: contract TEDDYPUFF is ERC20, Ownable, ReentrancyGuard {

48:     function withdrawMultipleTokens(address[] calldata _tokens) external onlyOwner
nonReentrant {

65:     function withdrawETH() external onlyOwner nonReentrant {

79:     function transferOwnership(address _newOwner) public override onlyOwner {

```

Explain Function Capability:

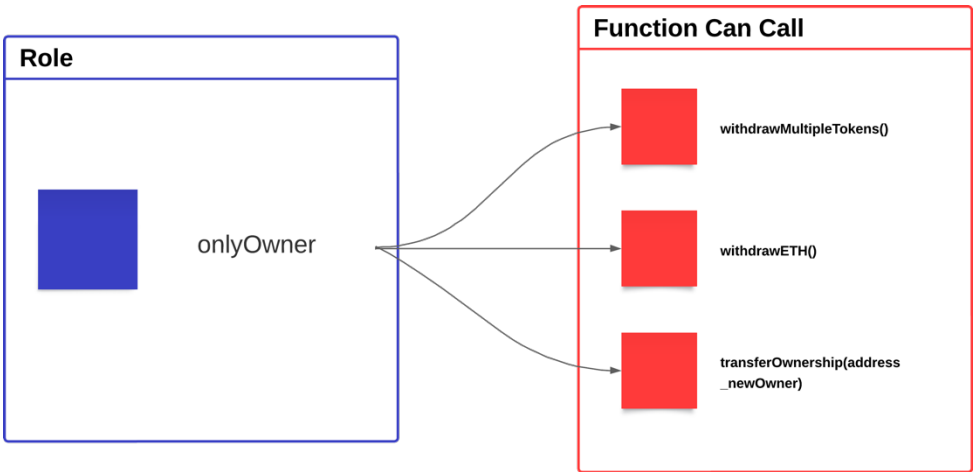
The contract provides several functions:

1. **withdrawMultipleTokens()**
   Purpose: This function allows the contract owner to withdraw multiple ERC20 tokens held by the contract.
   Usage: This function is intended to be called by the contract owner to withdraw ERC20 tokens that users have deposited directly into the contract.
2. **withdrawETH()**
   Purpose: This function allows the contract owner to withdraw ETH held by the contract.
   Usage: This function is intended to be called by the contract owner to withdraw ETH that users have deposited directly into the contract.
3. **transferOwnership(address _newOwner)**
   Purpose: This function allows the current contract owner to transfer ownership to a new address.
   Usage: This function is intended to be called by the current contract owner to change the owner of the contract.

The functions **withdrawMultipleTokens** and **withdrawETH** are restricted to the contract owner, centralizing the ability to withdraw funds.
Users who deposit ETH or ERC20 tokens directly into the token contract must rely on the contract owner to initiate the withdrawal process.

Avoid Direct Deposits: ***We recommend that users do not deposit ETH or ERC20 tokens directly into the Token Contract to avoid the risk of being unable to recover their funds.***

Centralization Risk



Recommendation:
In terms of timeframes, there are three categories: short-term, long-term, and permanent.

For short-term solutions, a combination of timelock and multi-signature (2/3 or 3/5) can be used to mitigate risk by delaying sensitive operations and avoiding a single point of failure in key management. This includes implementing a timelock with a reasonable latency, such as 48 hours, for privileged operations; assigning privileged roles to multi-signature wallets to prevent private key compromise; and sharing the timelock contract and multi-signer addresses with the public via a medium/blog link.

For long-term solutions, a combination of timelock and DAO can be used to apply decentralization and transparency to the system. This includes implementing a timelock with a reasonable latency, such as 48 hours, for privileged operations; introducing a DAO/governance/voting module to increase transparency and user involvement; and sharing the timelock contract, multi-signer addresses, and DAO information with the public via a medium/blog link.

Finally, permanent solutions should be implemented to ensure the ongoing security and protection of the system.

Alleviation:
-

CEN-02: Token Distribution

Vulnerability Detail	Severity	Location	Category	Status
Token Distribution	Informational	Check on finding	Centralization	**Acknowledge**

Finding:

Despite the Token Contract **not containing any malicious functions** that can be executed by the Owner, But, it has been identified that token contracts do not adequately define token distribution, with only one token holder **owning 100% as of Tuesday, February 4, 2025**. This presents a significant risk of centralization, and all potential participants must give careful consideration to this matter.

We strongly urge all participants **always promptly to verify token holdings** at
https://bscscan.com/token/0xE5744f31DfcBCEc7295771903EBCB22e96E0CB86#balances
https://etherscan.io/token/0xE5744f31DfcBCEc7295771903EBCB22e96E0CB86#balances

TeddyPuff Token has deployed multichain on BNB Chain & Ethereum

BNB Chain: **0xE5744f31DfcBCEc7295771903EBCB22e96E0CB86**

Address	Quantity	Percentage
0x3A574D29f15f842AE67Ea203E0db92a2c461838e	2,500,000,000	100%

Ethereum: **0xE5744f31DfcBCEc7295771903EBCB22e96E0CB86**

Address	Quantity	Percentage
0x3A574D29f15f842AE67Ea203E0db92a2c461838e	2,500,000,000	100%

***Note: Please note that SCRL is not responsible for any investments. And this document is not an investment recommendation document. If any project is in the pre-sale stage, please participate it at your own risk.
https://chat.scrl.io/hc/scrl-help-center/articles/1717548722-understand-the-risk-of-de_fi-web3

Recommendation:

We recommend creating a distribution token & liquidity lock contract to clearly define the distribution ratio for tokens such as Developer, Marketing, Liquidity, and further considerations below.

In terms of timeframes, there are three categories: short-term, long-term, and permanent.

For short-term solutions, a combination of timelock and multi-signature (2/3 or 3/5) can be used to mitigate risk by delaying sensitive operations and avoiding a single point of failure in key management. This includes implementing a timelock with a reasonable latency, such as 48 hours, for privileged operations; assigning privileged roles to multi-signature wallets to prevent private key compromise; and sharing the timelock contract and multi-signer addresses with the public via a medium/blog link.

For long-term solutions, a combination of timelock and DAO can be used to apply decentralization and transparency to the system. This includes implementing a timelock with a reasonable latency, such as 48 hours, for privileged operations; introducing a DAO/governance/voting module to increase transparency and user involvement; and sharing the timelock contract, multi-signer addresses, and DAO information with the public via a medium/blog link.

Finally, permanent solutions should be implemented to ensure the ongoing security and protection of the system.

Alleviation: -

GAS-01: `++i` costs less gas than `i++`, especially when it's used in `for`-loops (`--i`/`i--` too)

Vulnerability Detail	Severity	Location	Category	Status
`++i` costs less gas than `i++`, especially when it's used in `for`-loops (`--i`/`i--` too)	Gas-optimization	Check on finding	Gas Optimization	**Acknowledge**

Finding:

```
File: TeddyPuff.sol

50:         for (uint256 i = 0; i < length; i++) {

```
```

Recommendation:

Using ++i (pre-increment) instead of i++ (post-increment) can save gas, especially in for loops. The same principle applies to decrement operations (--i vs i--).

Change post-increment i++ to pre-increment ++i to optimize gas usage.

Alleviation:

-
```

GAS-02: Use != 0 instead of > 0 for unsigned integer comparison

Vulnerability Detail	Severity	Location	Category	Status
Use != 0 instead of > 0 for unsigned integer comparison	-	Check on finding	Gas Optimization	**Acknowledge**

Finding:

```
File: TeddyPuff.sol

54:                 if (balance > 0) {

```
```

Alleviation:

-
```

SWC Findings

ID	Title	Scanning	Result
SWC-100	Function Default Visibility	Complete	No risk
SWC-101	Integer Overflow and Underflow	Complete	No risk
SWC-102	Outdated Compiler Version	Complete	No risk
SWC-103	Floating Pragma	Complete	No risk
SWC-104	Unchecked Call Return Value	Complete	No risk
SWC-105	Unprotected Ether Withdrawal	Complete	No risk
SWC-106	Unprotected SELFDESTRUCT Instruction	Complete	No risk
SWC-107	Reentrancy	Complete	No risk
SWC-108	State Variable Default Visibility	Complete	No risk
SWC-109	Uninitialized Storage Pointer	Complete	No risk
SWC-110	Assert Violation	Complete	No risk
SWC-111	Use of Deprecated Solidity Functions	Complete	No risk
SWC-112	Delegatecall to Untrusted Callee	Complete	No risk
SWC-113	DoS with Failed Call	Complete	No risk
SWC-114	Transaction Order Dependence	Complete	No risk

SWC-115	Authorization through tx.origin	Complete	No risk
SWC-116	Block values as a proxy for time	Complete	No risk
SWC-117	Signature Malleability	Complete	No risk
SWC-118	Incorrect Constructor Name	Complete	No risk
SWC-119	Shadowing State Variables	Complete	No risk
SWC-120	Weak Sources of Randomness from Chain Attributes	Complete	No risk
SWC-121	Missing Protection against Signature Replay Attacks	Complete	No risk
SWC-122	Lack of Proper Signature Verification	Complete	No risk
SWC-123	Requirement Violation	Complete	No risk
SWC-124	Write to Arbitrary Storage Location	Complete	No risk
SWC-125	Incorrect Inheritance Order	Complete	No risk
SWC-126	Insufficient Gas Griefing	Complete	No risk
SWC-127	Arbitrary Jump with Function Type Variable	Complete	No risk
SWC-128	DoS With Block Gas Limit	Complete	No risk
SWC-129	Typographical Error	Complete	No risk
SWC-130	Right-To-Left-Override control character (U+202E)	Complete	No risk

SWC-131	Presence of unused variables	Complete	No risk
SWC-132	Unexpected Ether balance	Complete	No risk
SWC-133	Hash Collisions With Multiple Variable Length Arguments	Complete	No risk
SWC-134	Message call with hardcoded gas amount	Complete	No risk
SWC-135	Code With No Effects	Complete	No risk
SWC-136	Unencrypted Private Data On-Chain	Complete	No risk

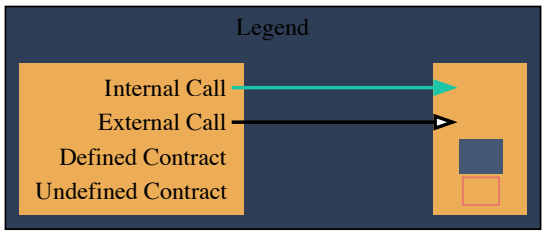
Contracts Description Table

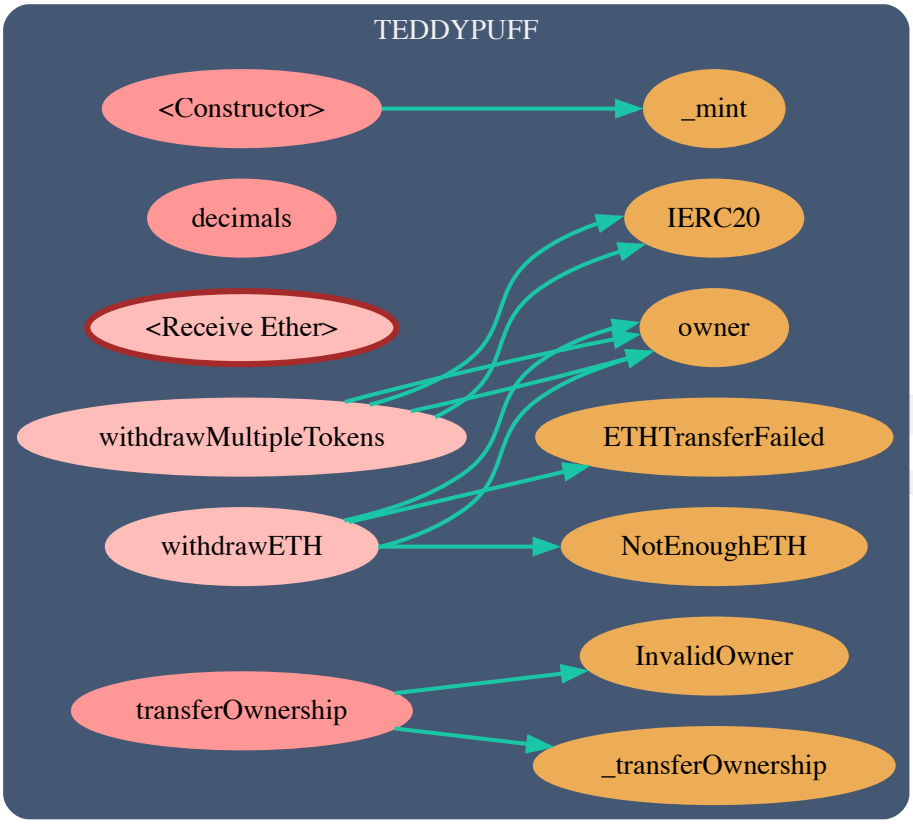
Contract	Type	Bases		
└	**Function Name**	**Visibility**	**Mutability**	**Modifiers**
TEDDYPUFF	Implementation	ERC20, Ownable, ReentrancyGuard		
└		Public !	🛑	ERC20
└	decimals	Public !		NO !
└		External !	💵	NO !
└	withdrawMultipleTokens	External !	🛑	onlyOwner nonReentrant
└	withdrawETH	External !	🛑	onlyOwner nonReentrant
└	transferOwnership	Public !	🛑	onlyOwner

Legend

Symbol	Meaning
🛑	Function can modify state
💵	Function is payable

Call Graph





UML Class Diagram

TEDDYPUFF TeddyPuff.sol
Private: _decimals: uint8
External: <<payable>> null() withdrawMultipleTokens(_tokens: address[]) <<onlyOwner, nonReentrant>> withdrawETH() <<onlyOwner, nonReentrant>> Public: <<event>> TokensWithdrawn(token: address, to: address, amount: uint256) <<event>> ETHWithdrawn(to: address, amount: uint256) constructor(_name: string, _symbol: string, __decimals: uint8, _totalSupply: uint256) decimals(): uint8 transferOwnership(_newOwner: address) <<onlyOwner>>

About SCRL

SCRL (Previously name SECURI LAB) was established in 2020, and its goal is to deliver a security solution for Web3 projects by expert security researchers. To verify the security of smart contracts, they have developed internal tools and KYC solutions for Web3 projects using industry-standard technology. SCRL was created to solve security problems for Web3 projects. They focus on technology for conciseness in security auditing. They have developed Python-based tools for their internal use called WAS and SCRL. Their goal is to drive the crypto industry in Thailand to grow with security protection technology.

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