



# Full Audit Report

## Patwars Security Assessment

Real Cybersecurity  
Protecting digital assets



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## FULL AUDIT REPORT

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## FULL AUDIT REPORT

### Report Information

About Report	Patwars Security Assessment
Version	v1.0
Client	Patwars
Language	Solidity
Confidentiality	Public
Contract File	PAWS.sol SHA-1: 52270e6c6dede473b38b6012eb74f8d91bad8343
Audit Method	Whitebox
Security Assessment Author	<b>Auditor</b>  Mark K. [Security Researcher   Redteam] Kevin N. [Security Researcher   Web3 Dev] Yusheng T. [Security Researcher   Incident Response]  <b>Approve Document</b> Ronny C. CTO & Head of Security Researcher Chinnakit J. CEO & Founder

\*Audit Method

**Whitebox:** SECURI LAB Team receives all source code from the client to provide the assessment.  
**Blackbox:** SECURI LAB Team receives only bytecode from the client to provide the assessment.

**Digital Sign (Only Full Audit Report)**

## FULL AUDIT REPORT

### 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 **SECURI Lab** 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 Not Financial/Investment Advice Any loss arising from any investment in any project is the responsibility of the investor.**

**SECURI LAB disclaims any liability incurred. Whether it's Rugpull, Abandonment, Soft Rugpull**



The SECURI LAB team has conducted a ~~comprehensive security LAB~~ assessment of the vulnerabilities. This assessment is tested with an expert assessment. Using the following test requirements

1. Smart Contract Testing with Expert Analysis By testing the most common and uncommon vulnerabilities.
2. Automated program testing It includes a sample vulnerability test and a sample of the potential vulnerabilities being used for the most frequent attacks.
3. Manual Testing with AST/WAS/ASE/SMT and reviewed code line by line
4. Visibility, Mutability, Modifier function testing, such as whether a function can be seen in general, or whether a function can be changed and if so, who can change it.
5. Function association test It will be displayed through the association graph.
6. This safety assessment is cross-checked prior to the delivery of the assessment results.

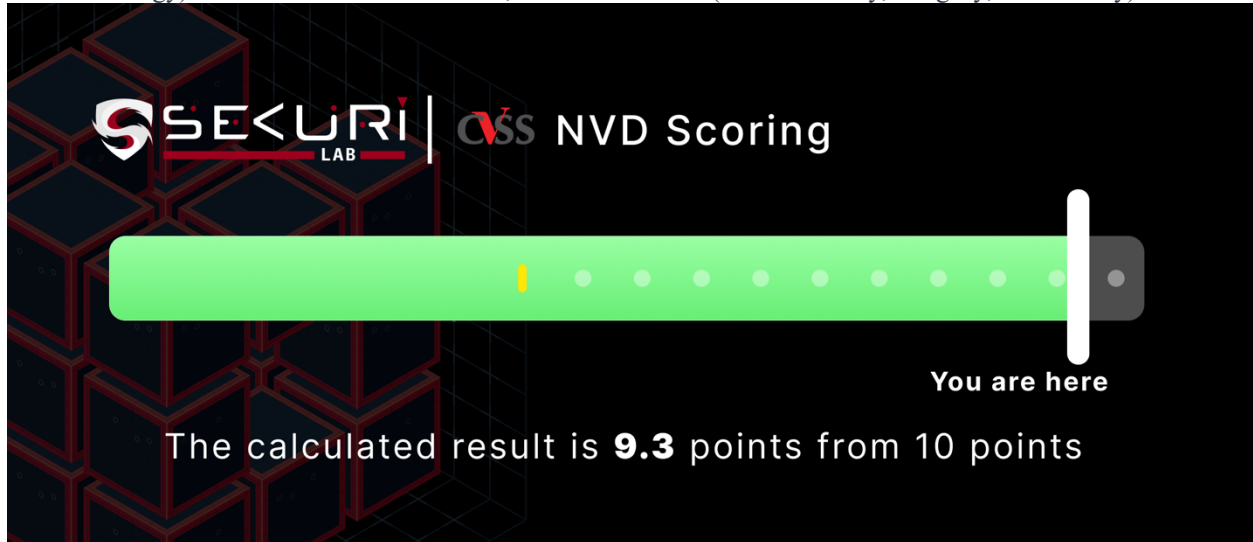
## FULL AUDIT REPORT

### Executive Summary

For this security assessment, SECURI LAB received a request from **Patwars on Thursday, April 20, 2023.**

### NVD CVSS Scoring

The score was calculated using the NVD (National Vulnerability Database) of NIST (National Institute of Standards and Technology) under the CVSS 3.1 standard, based on the CIA (Confidentiality, Integrity, Availability).



### Audit Result

SECURI LAB evaluated the smart contract security of the project and found: **Total : 2**

Critical	High	Medium	Low	Very Low	Informational
0	0	0	0	0	0

SECURI LAB has assessed the security of this smart contract.

The results of the security assessment revealed

**No Vulnerabilities.**

Full Audit Report by SECURI LAB on Apr 20, 2023

## FULL AUDIT REPORT

### Project Introduction

#### Scope Information:

Project Name	Patwars
Website	<a href="https://www.apebrigade.io">https://www.apebrigade.io</a>
Chain	-
Language	Solidity

#### Audit Information:

Request Date	Thursday, April 20, 2023
Audit Date	Thursday, April 20, 2023
Re-assessment Date	Saturday, April 22, 2023

#### Audit Version History:

Version	Date	Description
1.0	Thursday, April 20, 2023	Preliminary Report
1.1	Saturday, April 22, 2023	Full Audit Report

## FULL AUDIT REPORT

### Initial Audit Scope:









Smart Contract File

**PAWS.sol**

**SHA-1: 52270e6c6dede473b38b6012eb74f8d91bad8343**

Compiler Version

**v0.8.18**

Type	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
  	contracts/ PAWS.sol	2	2	179	146	95	25	79	 Σ
  	<b>Totals</b>	<b>2</b>	<b>2</b>	<b>179</b>	<b>146</b>	<b>95</b>	<b>25</b>	<b>79</b>	 Σ



- **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, ...)



## FULL AUDIT REPORT

### Full Audit Scope:

Smart Contract File

**PAWSv2.sol**

**SHA-1: 19dda4d733ab94279374d9a8379b6bab375a09ab**

Compiler Version

**v0.8.18**





## FULL AUDIT REPORT

### Security Assessment Procedure

Securi has the following procedures and regulations for conducting security assessments:

**1.Request Audit** Client submits a form request through the Securi channel. After receiving the request, Securi will discuss a security assessment. And drafting a contract and agreeing to sign a contract together with the Client

**2.Auditing** Securi performs security assessments of smart contracts obtained through automated analysis and expert manual audits.

**3.Preliminary Report** At this stage, Securi will deliver an initial security assessment. To report on vulnerabilities and errors found under Audit Scope will not publish preliminary reports for safety.

**4.Reassessment** After Securi has delivered the Preliminary Report to the Client, Securi will track the status of the vulnerability or error, which will be published to the Final Report at a later date with the following statuses:

**a.Acknowledge** The client has been informed about errors or vulnerabilities from the security assessment.

**b.Resolved** The client has resolved the error or vulnerability. Resolved is probably just a commit, and Securi is unable to verify that the resolved has been implemented or not.

**c.Decline** Client has rejected the results of the security assessment on the issue.

**5.Final Report** Securi providing full security assessment report and public



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### 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

Both have a total of 3 levels: **High, Medium, Low**. By *Informational* will not be classified as a level

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



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### Vulnerability Severity Summary

**Severity** is a risk assessment It is calculated from the Impact and Confidence values using the following calculation methods,

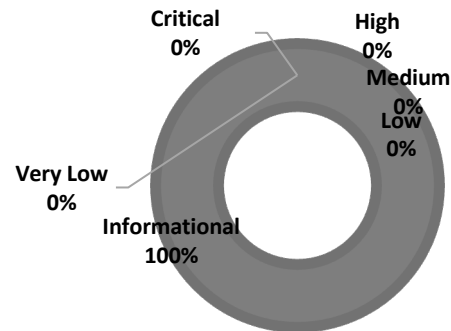
$Risk\ rating = impact * confidence$

It is categorized into

**5 categories based on the lowest severity:**

Very Low, Low, Medium, High, Critical.

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



Vulnerability Severity Level	Total
<b>Critical</b>	0
<b>High</b>	0
<b>Medium</b>	0
<b>Low</b>	0
<b>Very Low</b>	0
<b>Informational</b>	0
<b>Non-class/Optimization/Best-practices</b>	2

#### Category information:

<b>Centralization</b> <b>Centralization Risk</b> is The risk incurred by a sole proprietor, such as the Owner being able to change something without permission	<b>Economics Risk</b> <b>Economics Risk</b> is Risks that may affect the economic mechanism system, such as the ability to increase Mint token	<b>Logical Issue</b> <b>Logical Issue</b> is that can cause errors to core processing, such as any prior operations that cause background processes to crash.	<b>Authorization</b> <b>Authorization</b> is Possible pitfalls from weak coding allows unrelated people to take any action to modify the values.	<b>Mathematical</b> <b>Mathematical</b> Any erroneous arithmetic operations affect the operation of the system or lead to erroneous values.	<b>Naming Conventions</b> <b>Naming Conventions</b> naming variables that may affect code understanding or naming inconsistencies
<b>Security Risk</b> <b>Security Risk</b> of loss or damage if it's no mitigate	<b>Coding Style</b> <b>Coding Style</b> is Tips coding for efficiency performance	<b>Best Practices</b> <b>Best Practices</b> is suggestions for improvement	<b>Optimization</b> <b>Optimization</b> is performance improvement	<b>Gas Optimization</b> <b>Gas Optimization</b> is increase performance to avoid expensive gas	<b>Dead Code</b> <b>Dead Code</b> having unused code This may result in wasted resources and gas fees.

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### Vulnerability Findings

ID	Vulnerability Detail	Severity	Category	Status
SEC-01	Use Custom Errors	-	Gas Optimization	Resolved
SEC-02	Long revert strings	-	Gas Optimization	Resolved



## FULL AUDIT REPORT

### SEC-01: Use Custom Errors

Vulnerability Detail	Severity	Location	Category	Status
Use Custom Errors	-	Check on finding	Gas Optimization	Resolved

#### Finding:

```

127:         require(currentAllowance >= subtractedValue, "ERC20: decreased allowance
below zero");

142:         require(fromBalance >= amount, "ERC20: transfer amount exceeds balance");

158:         require(owner != address(0), "ERC20: approve from the zero address");

159:         require(spender != address(0), "ERC20: approve to the zero address");

172:         require(currentAllowance >= amount, "ERC20: insufficient allowance");

```

#### Scenario:

-

#### Recommendation:

Instead of using error strings, to reduce deployment and runtime cost, you should use Custom Errors. This would save both deployment and runtime cost.

<https://blog.soliditylang.org/2021/04/21/custom-errors/>

#### Alleviation:

Patwars Team has resolved this issue.

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### SEC-02: Long revert strings

Vulnerability Detail	Severity	Location	Category	Status
Long revert strings	-	Check on finding	Gas Optimization	Resolved

#### Finding:

```
127:         require(currentAllowance >= subtractedValue, "ERC20: decreased allowance
below zero");

142:         require(fromBalance >= amount, "ERC20: transfer amount exceeds balance");

158:         require(owner != address(0), "ERC20: approve from the zero address");

159:         require(spender != address(0), "ERC20: approve to the zero address");
```

#### Scenario:

-

#### Recommendation:

Long revert strings can indeed increase gas costs for transactions because they are stored as part of the contract bytecode. To optimize gas usage



#### Alleviation:

Patwars Team has resolved this issue.

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### 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

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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



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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



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# Visibility, Mutability, Modifier function testing

## Components


 Contracts	 Libraries	 Interfaces	 Abstract
1	0	2	1

## 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			
20	0			
External	Internal	Private	Pure	View
9	17	0	0	14

## StateVariables

Total	 Public
2	0



## Capabilities

Solidity Versions observed	 Experimental Features	 Can Receive Funds	 Uses Assembly	 Has Destroyable Contracts	
0.8.18					
 Transfers ETH	 Low- Level Calls	 DelegateC all	 Uses Hash Functions	 ECRecov er	 New/Create/C reate2
 TryCatch	Σ Unchecked				
	yes				

## FULL AUDIT REPORT

Contracts Description Table

Contract	Type	Bases		
L	Function Name	Visibility	Mutability	Modifiers
<b>IERC20</b>	Interface			
L	totalSupply	External !		NO !
L	balanceOf	External !		NO !
L	transfer	External !	●	NO !
L	allowance	External !		NO !
L	approve	External !	●	NO !
L	transferFrom	External !	●	NO !
<b>IERC20Metadata</b>	Interface	IERC20		
L	name	External !		NO !
L	symbol	External !		NO !
L	decimals	External !		NO !
<b>Context</b>	Implementation			
L	_msgSender	Internal 🔒		
L	_msgData	Internal 🔒		
<b>PAWS</b>	Implementation	Context, IERC20Metadata		
L		Public !	●	NO !
L	name	Public !		NO !
L	symbol	Public !		NO !

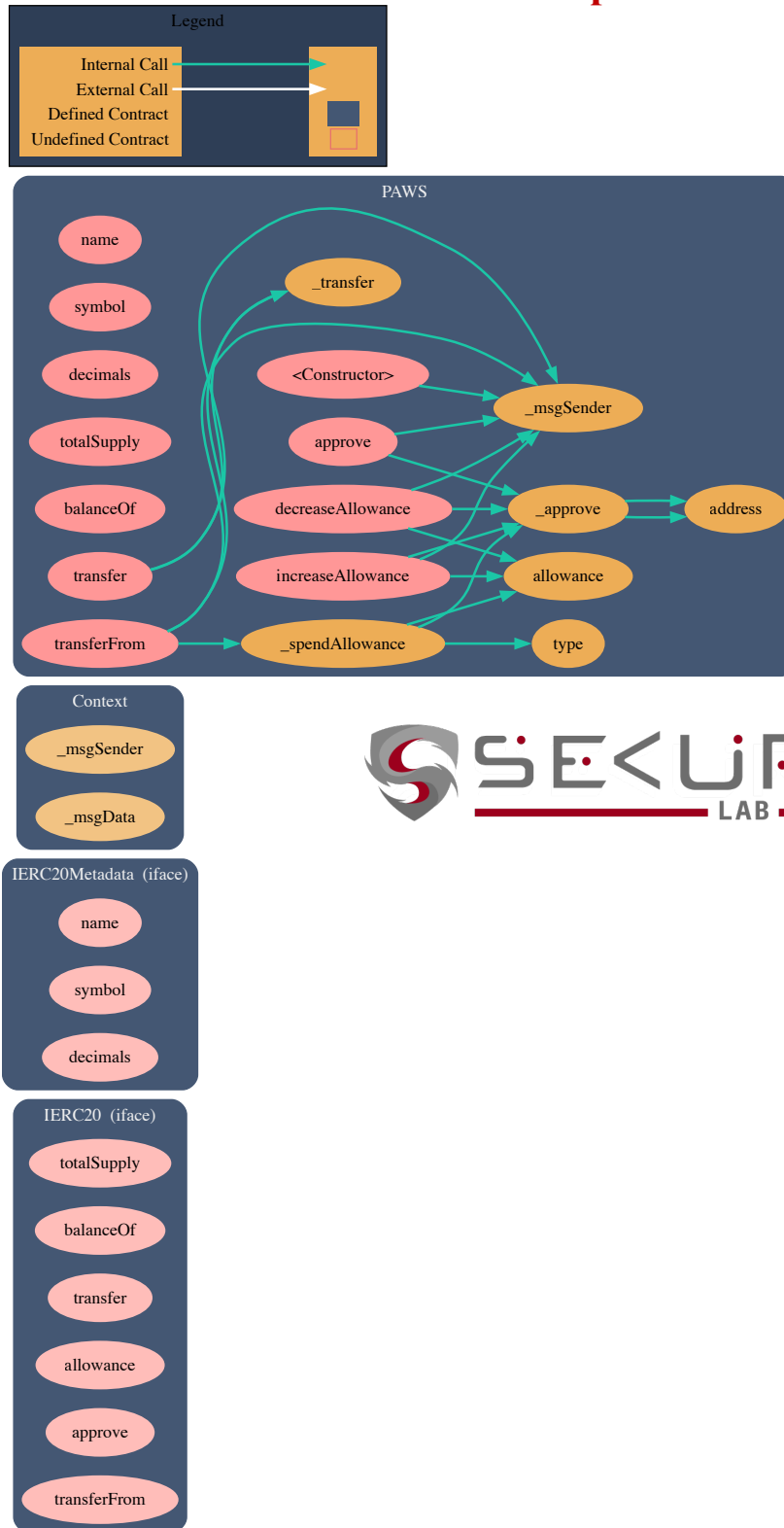
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Contract	Type	Bases		
L	decimals	Public !		NO !
L	totalSupply	Public !		NO !
L	balanceOf	Public !		NO !
L	transfer	Public !	🔴	NO !
L	allowance	Public !		NO !
L	approve	Public !	🔴	NO !
L	transferFrom	Public !	🔴	NO !
L	increaseAllowance	Public !	🔴	NO !
L	decreaseAllowance	Public !	🔴	NO !
L	_transfer	Internal 🔒	🔴	
L	_approve	Internal 🔒	🔴	
L	_spendAllowance	Internal 🔒	🔴	

Symbol	Meaning
🔴	Function can modify state
🔒	Function is payable

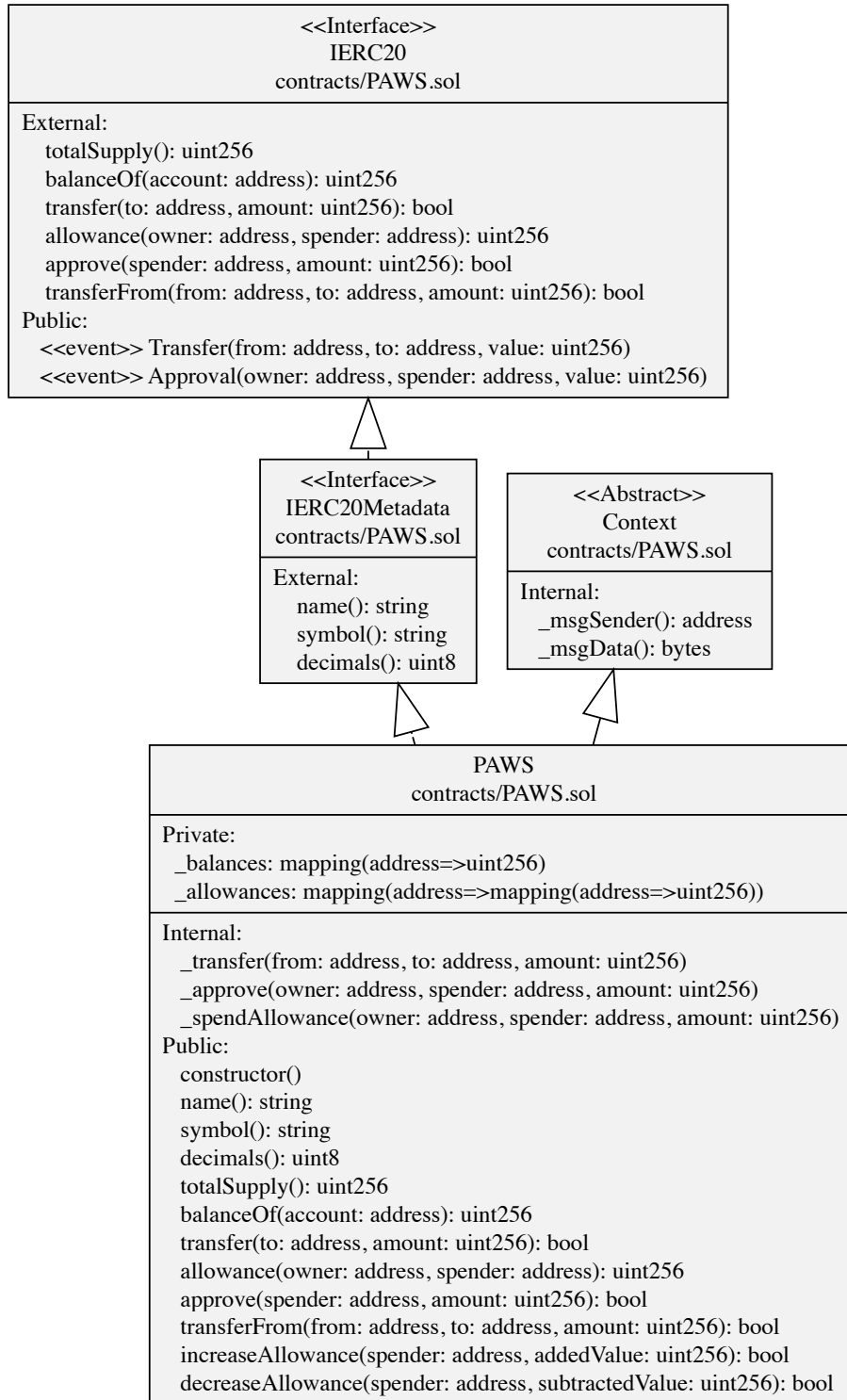
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# Inheritate Function Relation Graph



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### UML Class Diagram



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### About SECURI LAB

Enhance the security and legitimacy of your blockchain project with our professional Audit & KYC services. Our experienced team provides reliable, cost-effective, and secure verification processes.



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