



SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines

# SonarQube Cloud

formerly SonarCloud

Hunor Ördög, Norbert-Raymond Pap, István-Lehel Balázs

Department of Mathematics and Informatics  
Babeș-Bolyai University, Cluj-Napoca

2024 November



# Contents

## SonarQube Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines

- 1 Brand changes - 28 oct 2024
- 2 Introduction
- 3 Why Use SonarCloud?
- 4 Key Features
- 5 How SonarCloud Works
- 6 SonarCloud in Action
- 7 Integration with GitHub and CI/CD Pipelines

# Brand changes - 28 oct 2024

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

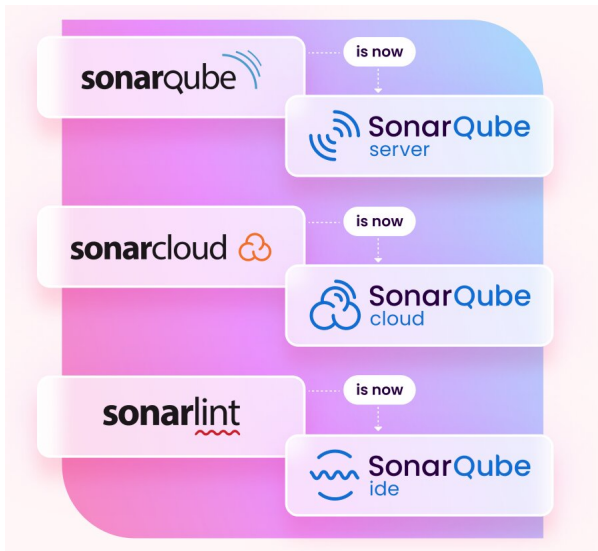
Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines





# What is Sonar?

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines

- Tool for **code quality** and **security** throughout the development lifecycle.
- Catch **bugs**, **vulnerabilities**, and **design issues** (Duplicated code, Large methods, Inconsistent naming).
- Improve **maintainability**, **readability**, and **security**.

# What is Sonar?

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

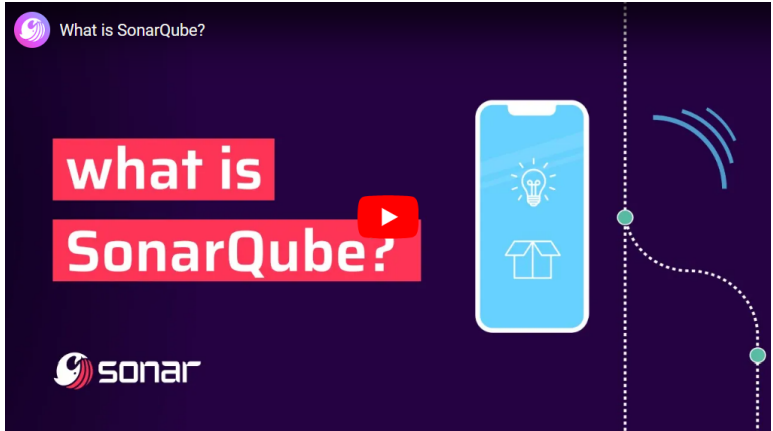
Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines





# Importance of Code Quality

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines

- **Enhances Code Maintainability:** Ensures code is clean and structured, making future modifications easier.
- **Prevents Technical Debt:** Identifies potential issues early to avoid accumulating maintenance burdens.



# Importance of Code Quality

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines

- **Reduces Defects and Bugs:** Early detection of code issues minimizes the chance of runtime errors.
- **Improves Team Collaboration:** Sets a standard for quality, enabling consistent and effective code reviews.



# Importance of Code Quality

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines

- **Facilitates Learning and Growth:** Promotes best practices, reinforcing sound coding principles for developers.





# Security Benefits

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines

- **Vulnerability Detection:** Sonar identifies security vulnerabilities and potential exploits in your code, helping prevent data breaches and security incidents.
- **OWASP Compliance:** Ensures code adheres to recognized security standards like OWASP Top 10, promoting industry-level security practices.

# Security Benefits

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

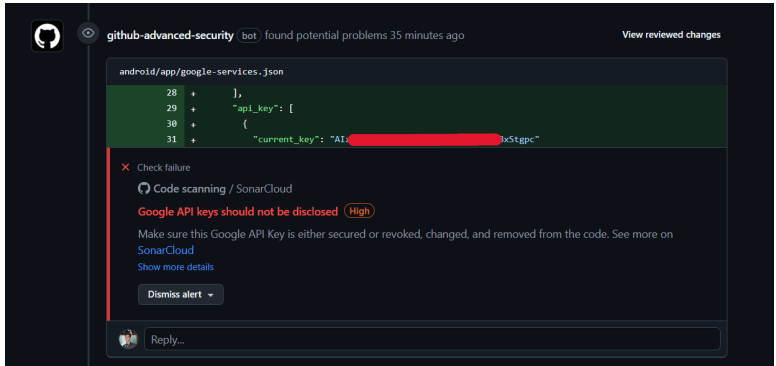
Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines



github-advanced-security bot found potential problems 35 minutes ago [View reviewed changes](#)

```
android/app/google-services.json
28 +   },
29 +   "api_key": [
30 +     {
31 +       "current_key": "AIzaSyBxStgpc"
```

✗ Check failure

🔍 Code scanning / SonarCloud

**Google API keys should not be disclosed** High

Make sure this Google API Key is either secured or revoked, changed, and removed from the code. See more on [SonarCloud](#)

[Show more details](#)

Dismiss alert





# Security Benefits

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines

- Solution suggestion in SonarCloud:

## Noncompliant code example

```
props.set("google-api-key", "zAIJf4Sux4MjGwxvkarrf1LPuACdyNSjzsyIoRI") // Noncompliant
```

## Compliant solution

```
props.set("google-api-key", System.getenv("GOOGLE_API_KEY"))
```



# Development Best Practices

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines

- **Code Smell Detection:** Highlights suboptimal code structures that could lead to future maintenance problems.
- **Enforces Coding Standards:** Automates the application of style and quality guidelines, ensuring consistency across the codebase.
- **Automated Quality Gates:** Sets pass/fail criteria for code quality, allowing only compliant code to merge into main branches, maintaining high development standards.



# Code Analysis

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

**Key Features**

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines



# Supported Languages by SonarCloud

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines

- **Programming Languages:**

- ABAP, C, C++, C#, Dart, Go, Java, JavaScript, Kotlin, PHP, Python, Ruby, Swift, TypeScript

- **Markup and Configuration:**

- CSS, SCSS, Less, style inside PHP/HTML/VueJS, HTML, XML

- **Infrastructure & Platforms:**

- Ansible, Azure Resource Manager, CloudFormation, Docker, Kubernetes/Helm, Terraform

- **Enterprise Languages:**

- Apex, COBOL, PLI, RPG



# Integration Capabilities

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

**Key Features**

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines



# Cloud-Based Convenience

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

**Key Features**

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines





# Static Code Analysis

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines



# Quality Gates

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines



# Dashboard and Reports

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines



# Example Workflow

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines



# Live Demo

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines



# Setting Up SonarCloud in GitHub

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines



# Basic Pipeline Configuration

SonarQube  
Cloud

Hunor Ördög,  
Norbert-  
Raymond Pap,  
István-Lehel  
Balázs

Brand changes  
- 28 oct 2024

Introduction

Why Use  
SonarCloud?

Key Features

How  
SonarCloud  
Works

SonarCloud in  
Action

Integration  
with GitHub  
and CI/CD  
Pipelines