

- how to configure your Azure Build definitions to use SonarCloud,
- how to understand the analysis results,
- how to configure quality profile to control the rule set used by SonarCloud for analyzing your project.

## Prerequisites

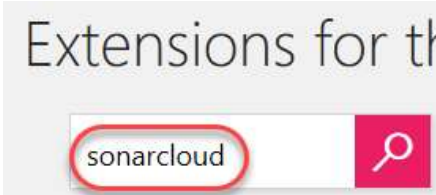
- A SonarCloud account from <https://sonarcloud.io>.
- This lab requires you to complete task 1 from the [prerequisite](#) instructions.

## Task 1: Install and configure the SonarCloud extension

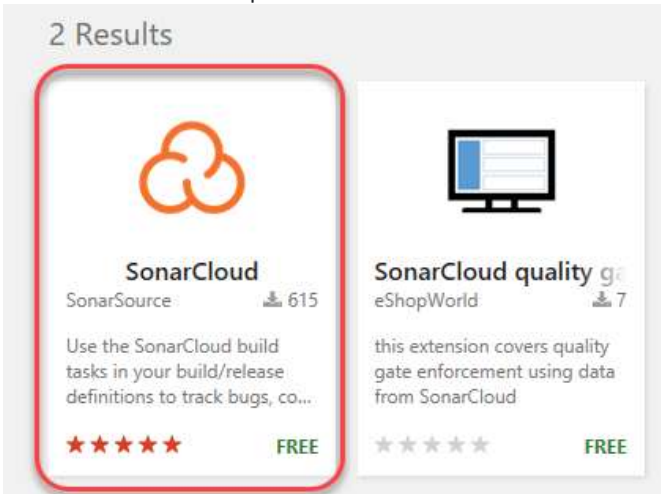
1. Navigate to your team project on Azure DevOps.
2. SonarCloud is provided as a marketplace extension. From the **Marketplace** navigation dropdown, select **Browse Marketplace**.



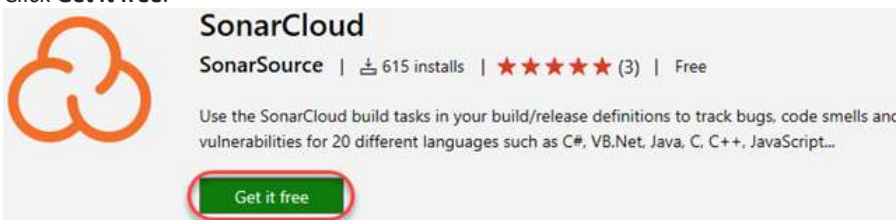
3. Search for "SonarCloud".



4. Select the **SonarCloud** option.



5. Click **Get it free**.



6. Select the organization to install **SonarCloud** into. This should be the organization that contains your **Parts Unlimited** project. Click **Install**.

Select a Visual Studio Team Services organization



**Install**

- Click **Proceed to organization**.

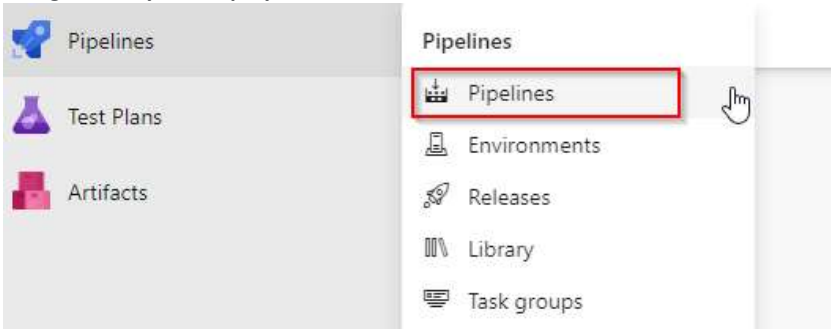
You are all set!

**Proceed to organization** Go to Marketplace

- Navigate to your **Parts Unlimited** team project.

## Task 2: Integrating a build with SonarCloud

- Navigate to **Pipelines | Pipelines**.



- Select **New pipeline** to create a new build pipeline.




- Click **use the classic editor**.

Connect Select Configure Review

New pipeline

## Where is your code?

 **Azure Repos Git** YAML  
Free private Git repositories, pull requests, and code search

 **Bitbucket Cloud** YAML  
Hosted by Atlassian

 **GitHub** YAML  
Home to the world's largest community of developers

 **GitHub Enterprise Server** YAML  
The self-hosted version of GitHub Enterprise

 **Other Git**  
Any generic Git repository

 **Subversion**  
Centralized version control by Apache

Use the classic editor to create a pipeline without YAML.

- Accept the default options and click **Continue**.

Select a source



Select a source



Team project



Repository



Default branch for manual and scheduled builds



Continue

5. Select the **.NET Desktop with SonarCloud** template and click **Apply**.

Others



**.NET Core with SonarCloud**

Build .NET Core and ASP.NET Core applications, and analyze with SonarCloud.



**.NET Desktop with SonarCloud**

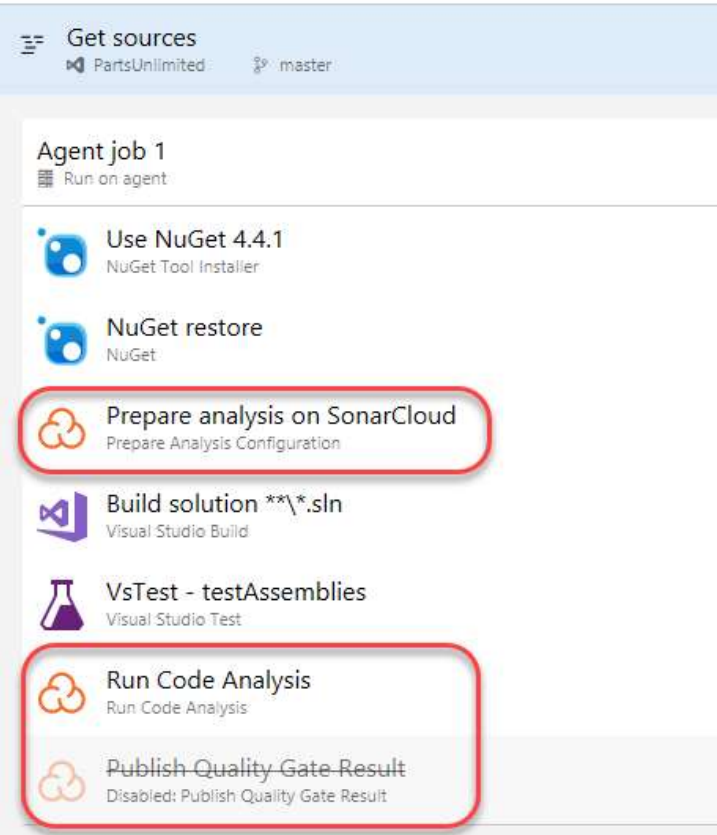
Build and run tests for .NET Desktop or Windows Classic Desktop solutions, and analyze with SonarCloud. This template requires that Visual Studio be installed on the build agent.

Apply

6. This build definition is pretty standard for a .NET project, except that it also includes three additional tasks for **SonarCloud**. Note that you could easily integrate these specific tasks with your existing build definitions. There's no need to start from scratch like we are in this lab.

Pipeline

Build pipeline



7. Set the **Agent pool** to **Hosted**. It should be the first option and have the **Visual Studio** logo.

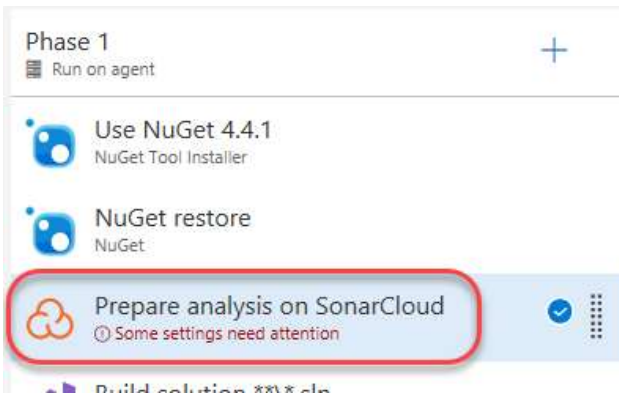
Agent pool \* | Pool information | Manage



Agent Specification \*



8. Select the **Prepare analysis on SonarCloud** task. This task defines the connection configuration for any later tasks.



9. Click **New** to configure a new **SonarCloud Service Endpoint**.

Display name \*

SonarCloud Service Endpoint \* ⓘ | [Manage](#)

ⓘ This setting is required.

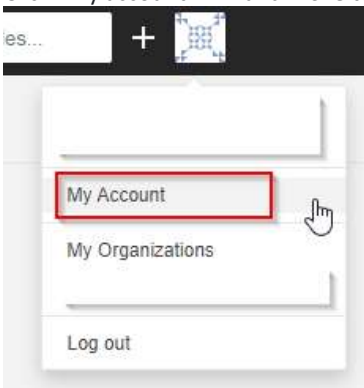
10. Click **your SonarCloud account security page** to open the account page in a new tab.

Connection name

SonarCloud Token  ⓘ

Go to **your SonarCloud account security page** to generate a token.

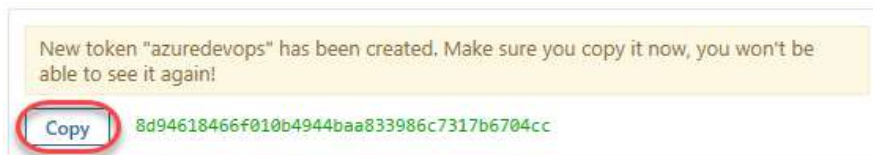
11. Navigate to <https://sonarcloud.io> and sign in to your SonarCloud account.
12. Click "My account link" and move to "Security" tab



13. To generate a token, enter a name like **"azuredevops"** and click **Generate**.

Generate Tokens

14. When the token is generated, click **Copy** to copy it to your clipboard. This token is tied to your account and the only thing necessary to access the service on your behalf.



15. Enter a **Service connection name** of **"SonarCloud"** and paste the token as the **SonarCloud Token**. Click **Verify and save**.

**New service connection**

Authentication

## New service connection



### Authentication

SonarCloud Token

.....

Authentication Token generated through SonarCloud (go to My Account > Security > Generate Tokens)

Verify

### Details

Service connection name

SonarCloud

Description (optional)

### Security

☒ Grant access permission to all pipelines

16. Select **SonarCloud** as the **SonarCloud Service Endpoint** and select an **Organization** associated with the account. You'll also need to provide a globally unique **Project Key**, such as "**partsunlimited.YOURNAME**".

Display name \*

Prepare analysis on SonarCloud

SonarCloud Service Endpoint \* ⓘ | Manage ⓘ

SonarCloud

Organization \* ⓘ

Choose the way to run the analysis \* ⓘ

☒ Integrate with MSBuild ☐ Integrate with Maven or Gradle ☐ Use standalone scanner

Project Key \* ⓘ

partsunlimited.johndoe

17. Select **Save & queue** | **Save & queue** to kick off a new build.

Parts Unlimited-.NET Desktop with SonarCloud-CI

Tasks Variables Triggers Options Retention History

Process Build process

Save & queue

Save & queue

18. Click the new build link to follow its progress through to completion.

Build #20180612.1 has been queued.

### Task 3: Reviewing SonarCloud results

1. From the left panel, select the **Run Code Analysis** task. This contains the processes where SonarCloud analyzes the code.

- ✓ Prepare analysis on SonarCloud · succeeded
- ✓ Build solution · succeeded 11 warnings
- ✓ Test Assemblies · succeeded
- ✓ Run Code Analysis · succeeded
- ✓ Copy Files · succeeded
- ✓ Publish Artifact · succeeded

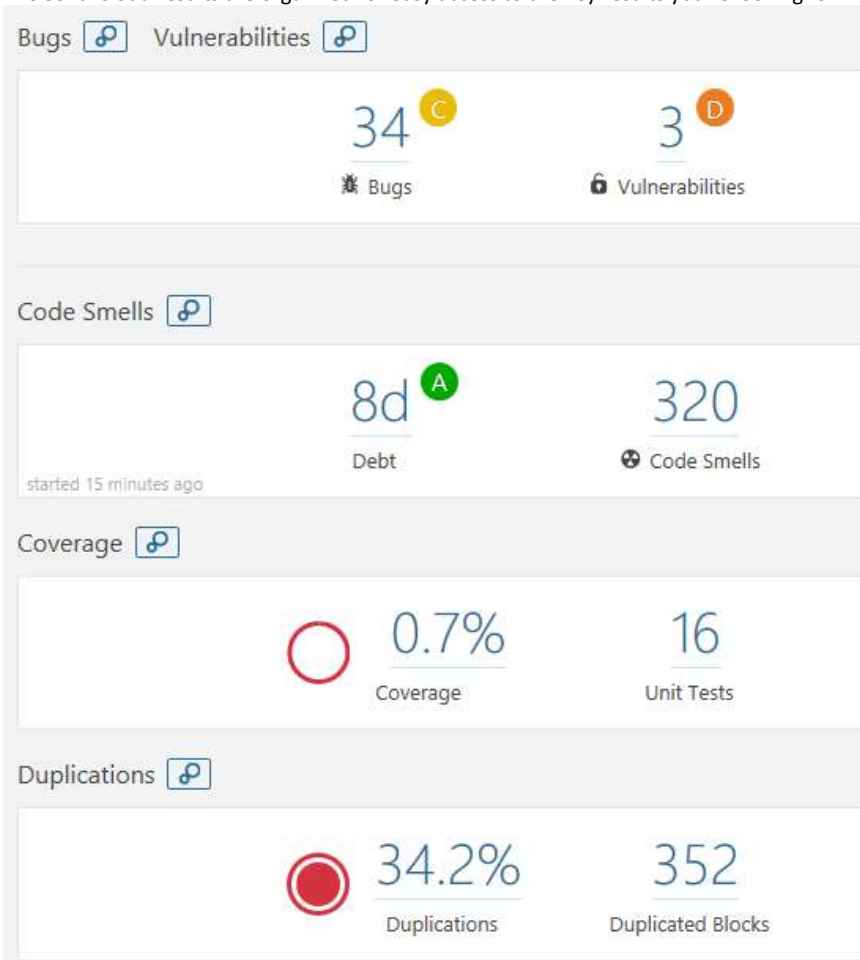
- Near the end of the log, locate the URL to the results viewer and open it.

```

161 2018-09-05T17:50:51.2673999Z WARNING: WARN: Too many duplication references on file PartsUnlimited-aspnet45/src/PartsUnlimitedWebS
162 2018-09-05T17:50:51.3947493Z WARNING: WARN: Too many duplication references on file PartsUnlimited-aspnet45/src/PartsUnlimitedWebS
163 2018-09-05T17:50:51.4633714Z INFO: CPO calculation Finished
164 2018-09-05T17:50:51.8708252Z INFO: Analysis report generated in 390ms, dir size=6 MB
165 2018-09-05T17:50:52.3440983Z INFO: Analysis reports compressed in 468ms, zip size=1 MB
166 2018-09-05T17:50:53.8844203Z INFO: Analysis report uploaded in 1554ms
167 2018-09-05T17:50:53.8958997Z INFO: ANALYSIS SUCCESSFUL, you can browse https://sonarcloud.io/dashboard?id=partsunlimited\_1ohndoe
168 2018-09-05T17:50:53.8959382Z INFO: Note that you will be able to access the updated dashboard once the server has processed the sub
169 2018-09-05T17:50:53.8959767Z INFO: More about the report processing at https://sonarcloud.io/api/ce/task?id=Ab4q28N\_H7\_BH2Xc9nPS
170 2018-09-05T17:50:54.0013737Z INFO: Task total time: 1m01.016s

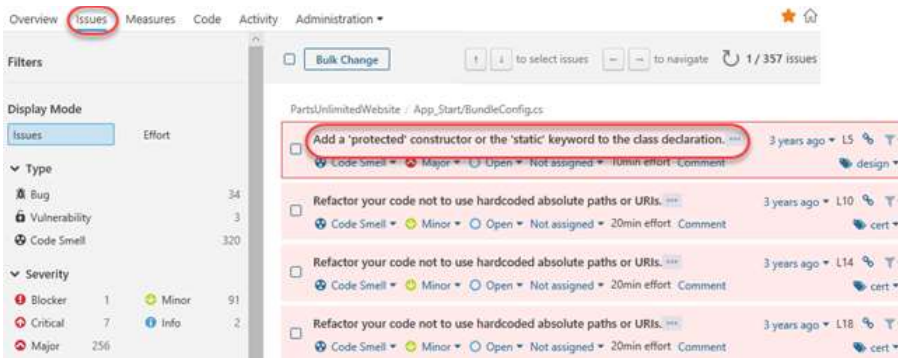
```

- The SonarCloud results are organized for easy access to the key results you're looking for.



- Select the **Issues** tab. This provides a convenient way to filter and sort the results so that you can attack the section you feel needs immediate attention. Select the first result.

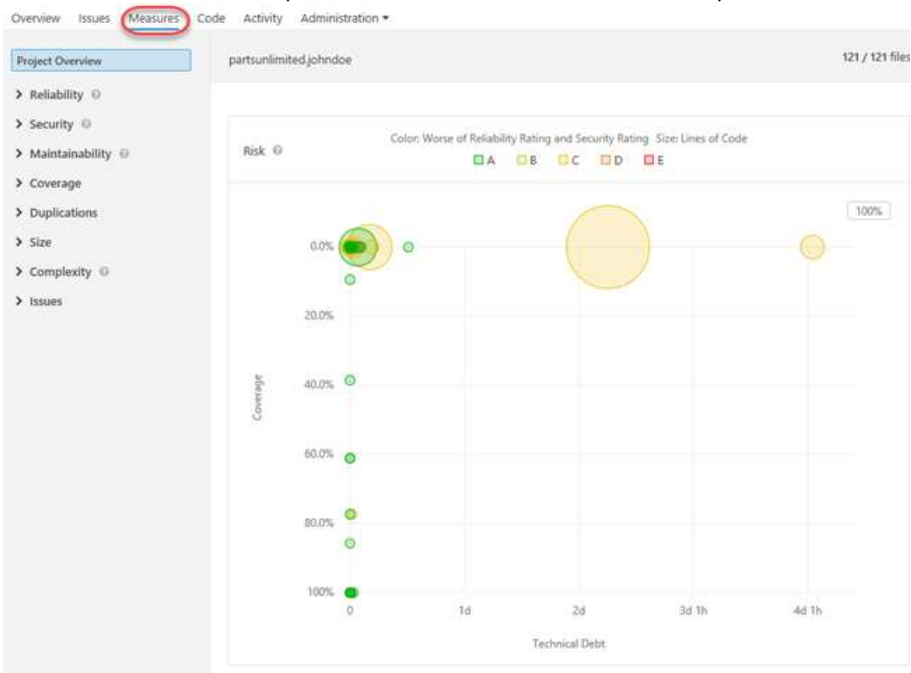




- The code view provides an in-depth review of each issue, along with suggestions and configuration options. For this issue, select **Open | Resolve as won't fix**.



- Select the **Measures** tab. This provides a visualization of issues as selected by the available filters.



- Filter down to see the **Reliability | Overview**. This enables you to hover over the various assets to see the amount of effort required to fix and/or maintain various components for reliability.



8. Select the **Code** tab and drill into the **PartsUnlimitedWebsite** project. This provides a way to review project issues at a file level.

Overview Issues Measures **Code** Activity Administration

Search for files and sub-projects...

	Lines of Code	Bugs	Vulnerabilities	Code Smells	Coverage	Duplications
partsunlimited.johndoe						
FabrikamFiber.SeleniumTests		0	0	0		
PartsUnlimited.UnitTests		0	0	0		
<b>PartsUnlimitedWebsite</b>	40k	34	3	320	0.7%	34.2%

9. Open **Bootstrapper.cs**.

partsunlimited.johndoe > PartsUnlimitedWebsite

Lines of Code

PartsUnlimitedWebsite	40k
<b>Bootstrapper.cs</b>	24

10. Locate the first issue related to having commented code. Expand it using the **chevron** and click the **ellipses** to see a detailed explanation and references as to the relevance and importance of this rule.

25 `// e.g. container.RegisterType<ITestService, TestService>();`

Remove this commented out code.

Code Smell Major Open Not assigned 5min effort Comment

26 `RegisterTypes(container);`

Sections of code should not be "commented out"

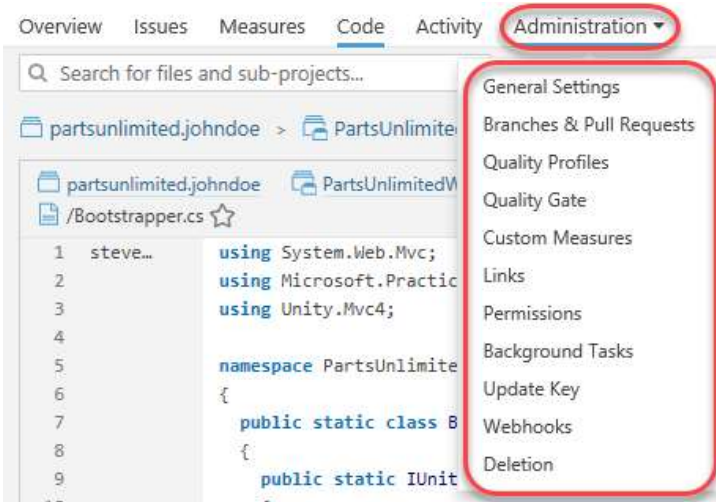
Code Smell Major Main sources misra, unused Available Since 05/19/2015 SonarAnalyzer (C#) Constant/issue: 5min

Programmers should not comment out code as it bloats programs and reduces readability.

Unused code should be deleted and can be retrieved from source control history if required.

11. Expand the **Administration** option. Note that there is an incredible amount of flexibility available here for customizing your SonarCloud analysis.





From <<https://github.com/microsoft/azuredevopslabs/tree/master/labs/azuredevops/sonarcloud>>