

# DEVSECOPS END-TO-END-PROJECT

Prerequisite:

Install selfhosted Agent machine should be with the size 2 cpu and 8GB RAM

sonaragent

Update all agents

New agent

Jobs

Agents

Details

Security

Approvals and checks

Analytics

Name	Last run	Current status	Agent version	Enabled
java <div>Offline</div>	Thursday	Idle	4.248.0	<div>On</div>

Add capabilities for this agent

← java

Jobs

Capabilities

User-defined capabilities

+

No user-defined capabilities

[Add a new capability](#)

Add user-defined capability

×

This action allows the agent to run jobs with a matching user-defined demand in a pipeline.

Name:

maven

Value:

true

Add user-defined capability

This action allows the agent to run jobs with a matching user-defined demand in a pipeline.

Name:

java

Value:

true

## Java 17 version

```
azadmin@java:~$ java --version
openjdk 17.0.13 2024-10-15
OpenJDK Runtime Environment (build 17.0.13+11-Ubuntu-2ubuntu124.04)
OpenJDK 64-Bit Server VM (build 17.0.13+11-Ubuntu-2ubuntu124.04, mixed mode, sharing)
azadmin@java:~$
```

## Install maven

# apt install maven

## Install trivy

# snap install trivy

```
azadmin@java:~$ trivy --version
Version: 0.52.2
Vulnerability DB:
```

Install docker and give permission to all users: by running below command

# sudo apt install docker.io -y

sudo chmod 666 /var/run/docker.sock

**Install sonarqube on docker container using image:**

***mc1arke/sonarqube-with-community-branch-plugin***

docker run -d --name sonar -p 9000:9000

mc1arke/sonarqube-with-community-branch-plugin

```
15 clear
16 docker run -d --name sonar -p 9000:9000 mclarke/sonarqube-with-community-branch-plugin
17 docker ps
```

# Configure Azuredevops pipeline now

+

...

boardproj-CI

Tasks

Variables

Triggers

Options

History

Save & queue

Discard

Summary

Queue

...

Pipeline

Build pipeline

...

Get sources

Boardgame.git

develop

Agent job 1

Run on agent

+

Maven pom.xml

Maven

✓

⋮

Copy jar file

Copy files

Copy Manifestfile

Copy files

Publish Pipeline Artifact

Publish Pipeline Artifacts

Prepare analysis on SonarQube Server

Prepare Analysis Configuration

Run Code Analysis

Run Code Analysis

Trivy Scan

Command line

Display name \*

Maven pom.xml

Azure Resource Manager connection ⓘ | Manage

KrishnaReddy-DEV-ENV (adfed678-4682-4bb0-a62f-2ebd77f373fd) ▾ ↻

ⓘ Scoped to subscription 'KrishnaReddy-DEV-ENV'

Maven POM file \*

ⓘ

pom.xml

⋮

Goal(s) ⓘ

package

Options ⓘ

JUnit Test Results ^

✓ Publish to Azure Pipelines ⓘ

Test results files \*

ⓘ

\*\*/surefire-reports/TEST-\*.xml

⋮

Test run title ⓘ

...

boardproj-CI

Tasks

Variables

Triggers

Options

History

Save & queue

Discard

Summary

Queue

...

Pipeline

Build pipeline

...

Get sources

Boardgame.git

develop

Agent job 1

Run on agent

+

Maven pom.xml

Maven

Copy jar file

Copy files

✓

⋮

Copy Manifestfile

Copy files

Publish Pipeline Artifact

Publish Pipeline Artifacts

Prepare analysis on SonarQube Server

Prepare Analysis Configuration

Run Code Analysis

Run Code Analysis

Trivy Scan

Command line

Copy files ⓘ

Link settings

View YAML

Remove

Task version

2.\* ▾

Display name \*

Copy jar file

Source Folder ⓘ

\$(system.defaultworkingdirectory)

⋮

Contents \*

ⓘ

\*\*/\*.jar

Target Folder \*

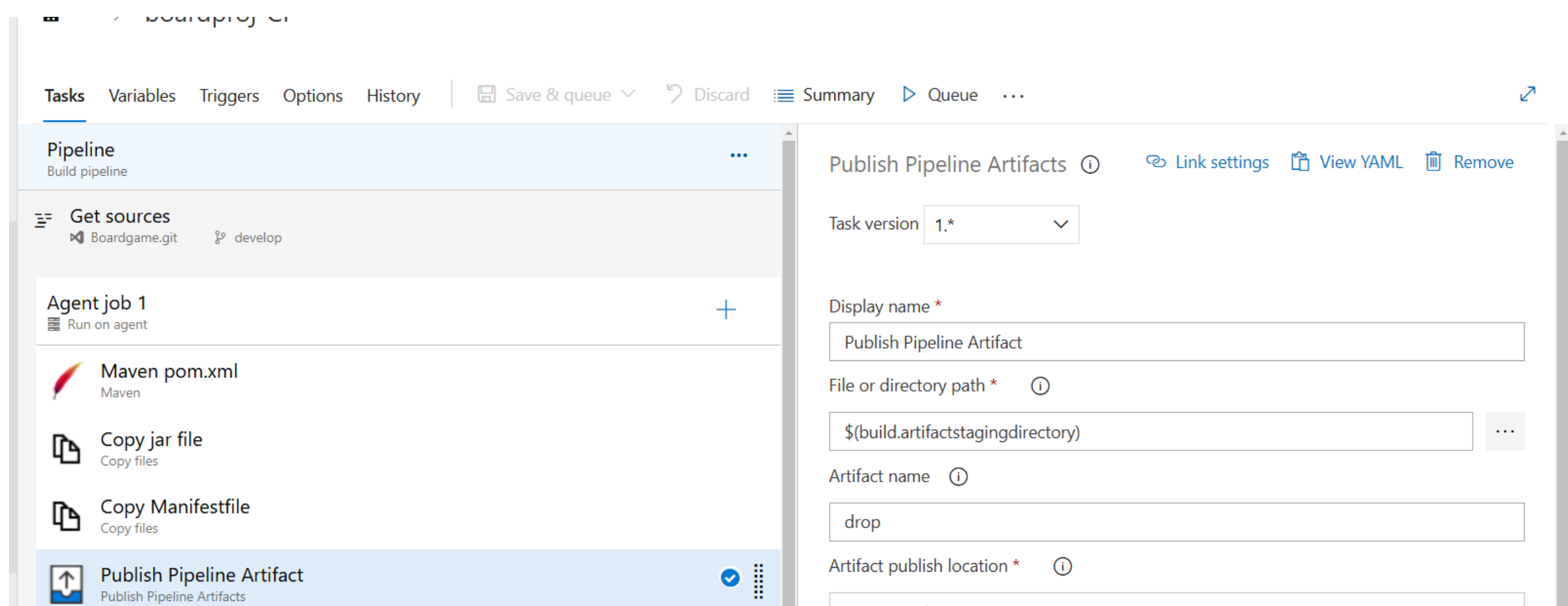
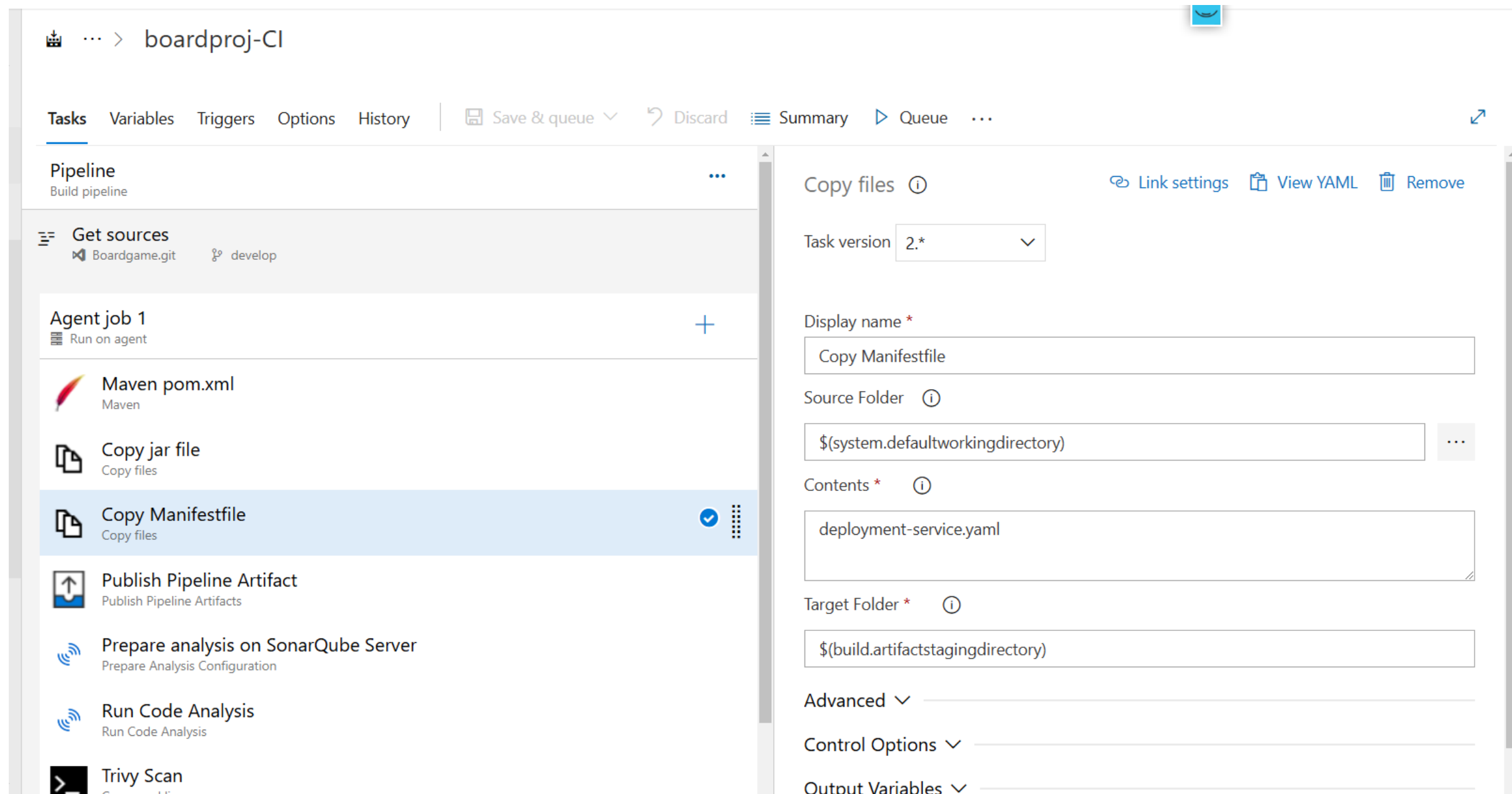
ⓘ

\$(build.artifactstagingdirectory)

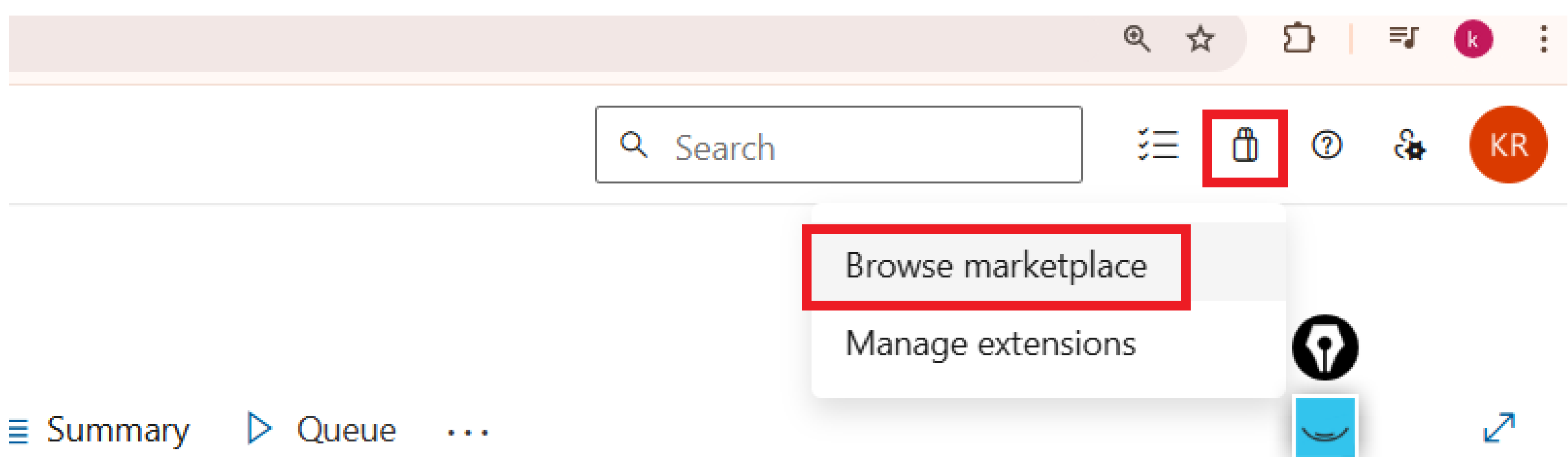
Advanced ▾

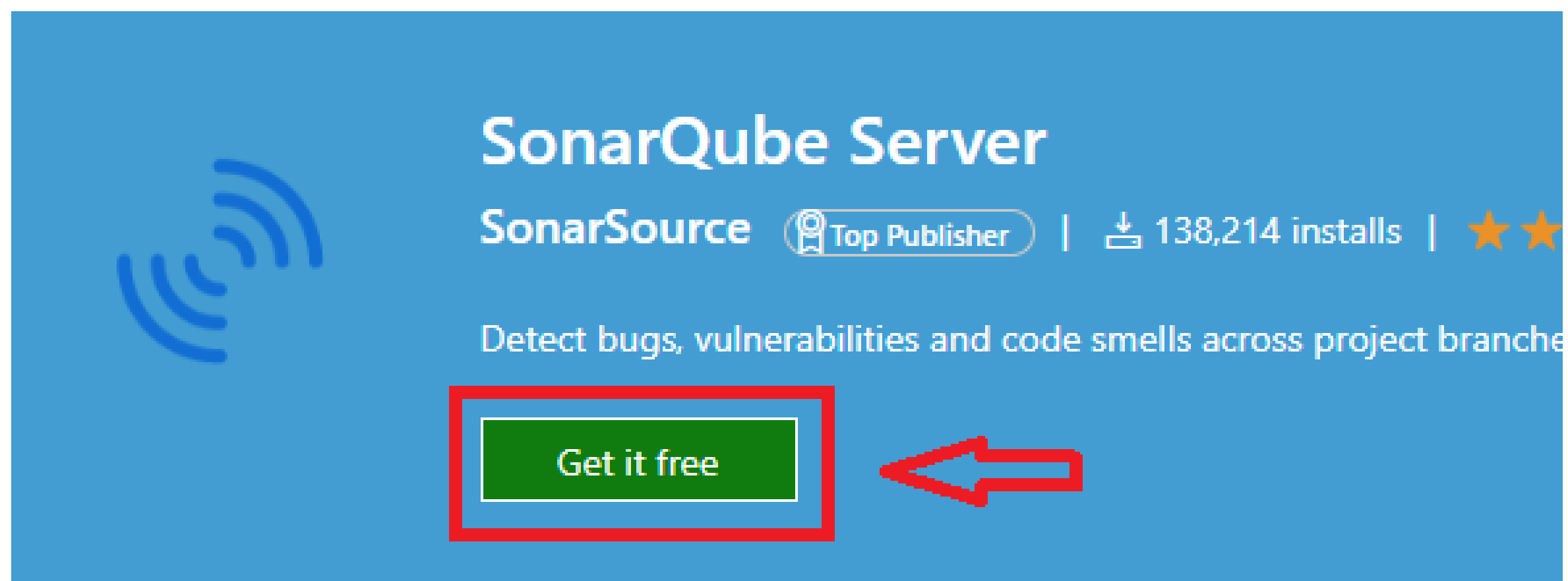
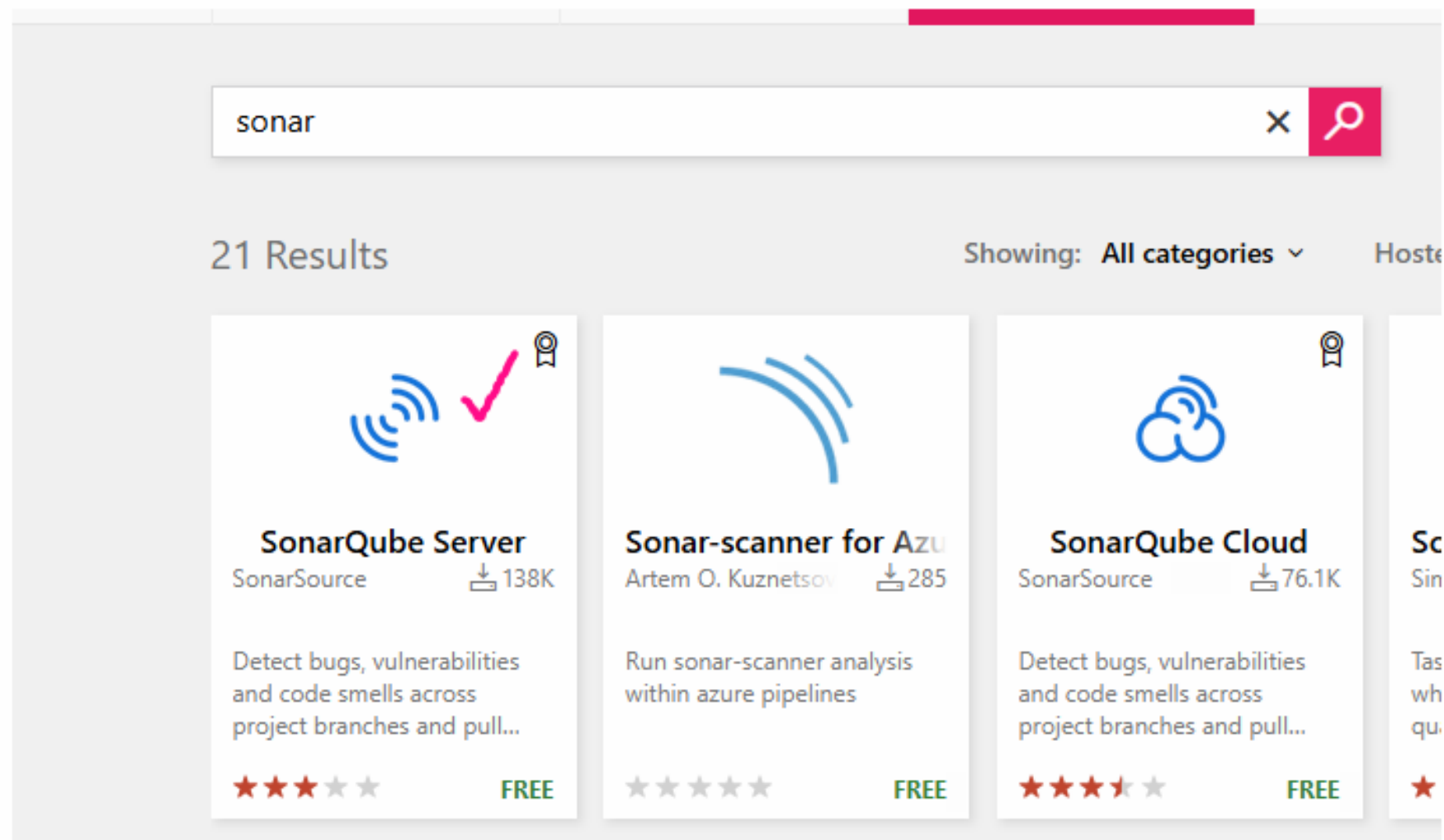
Control Options ▾

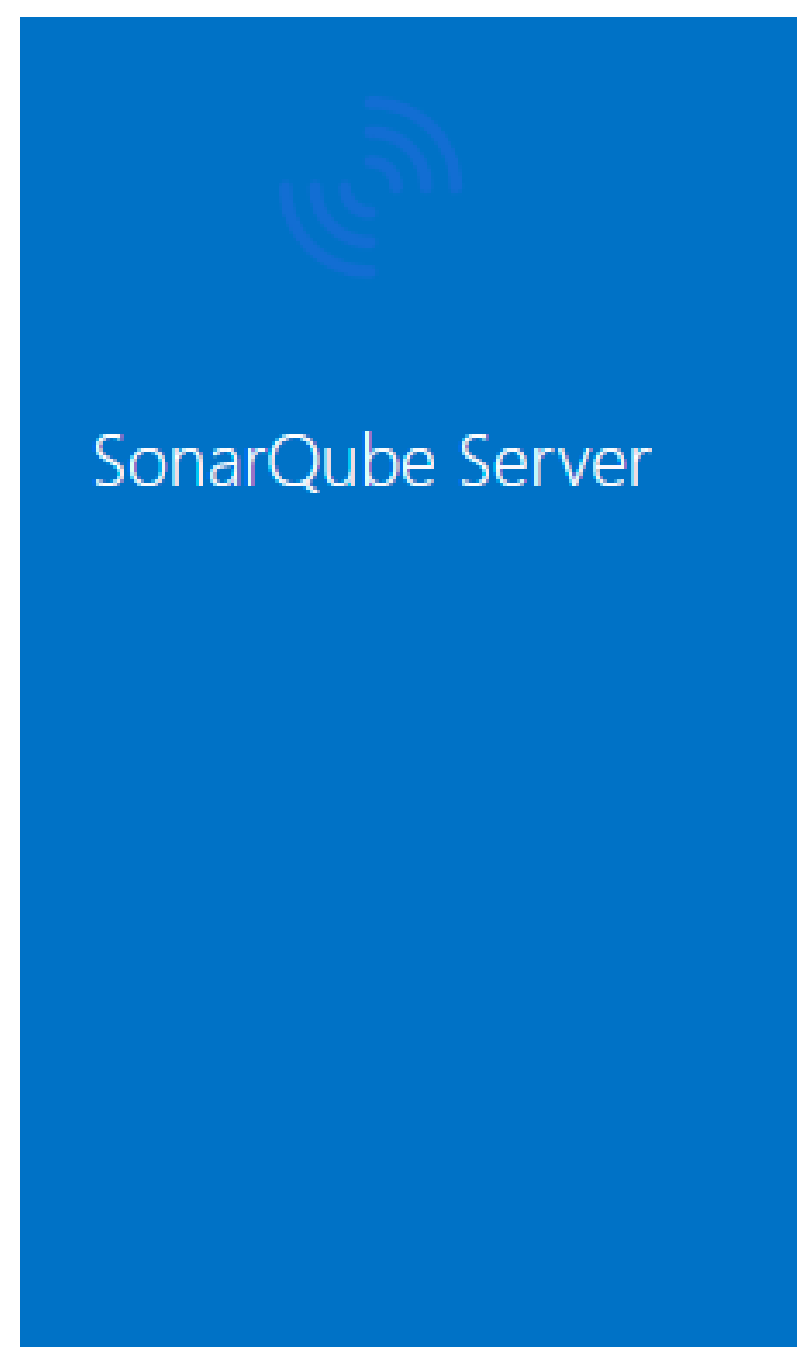
Output Variables ▾



To integrate sonar qube in azure pipeline








Organization Done

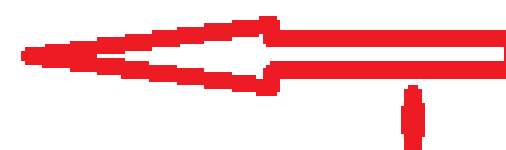
## Select an Azure DevOps organization

greatmindit1


 This extension is already installed on this organization: [greatmindit1](#).

For Azure DevOps Server

Download

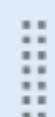


Add tasks | Refresh

 sonar



\*\* Run scanner and upload the results to the SonarQube Server.




### Prepare Analysis Configuration

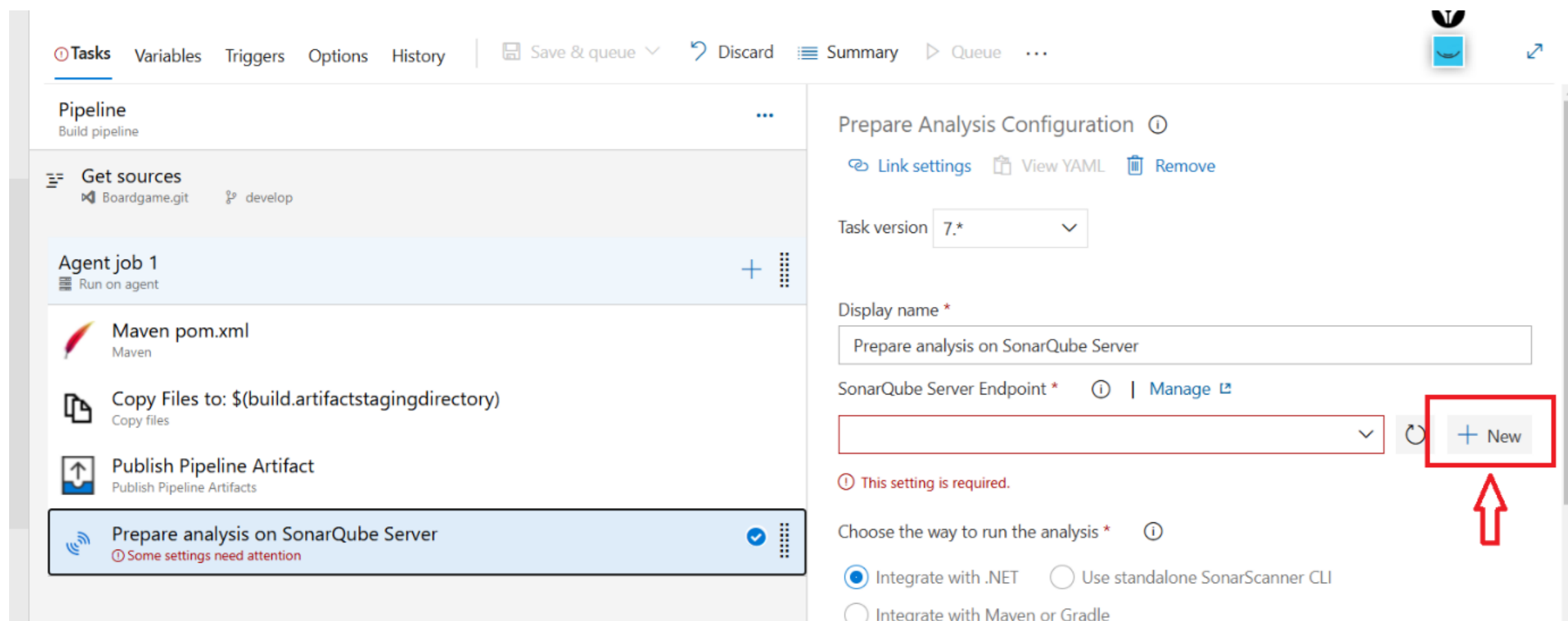
Prepare SonarQube Server analysis configuration

by sonarsource

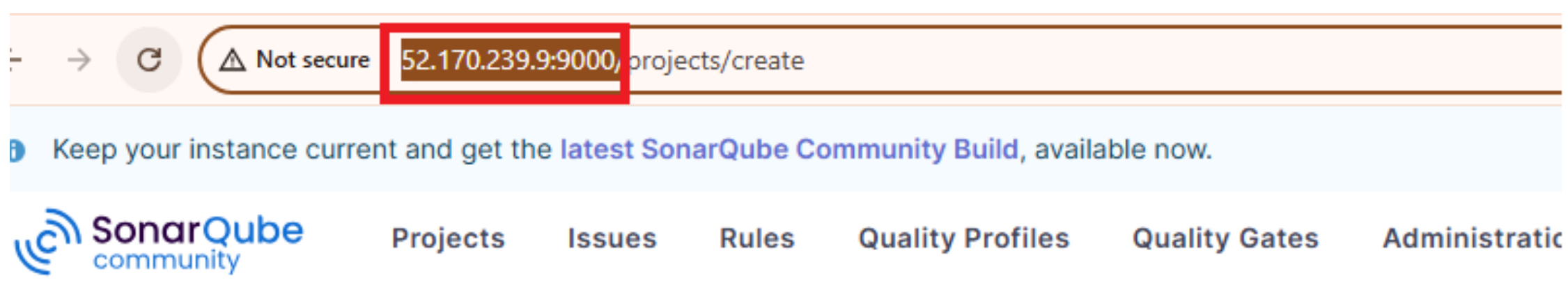
Add

 Learn more



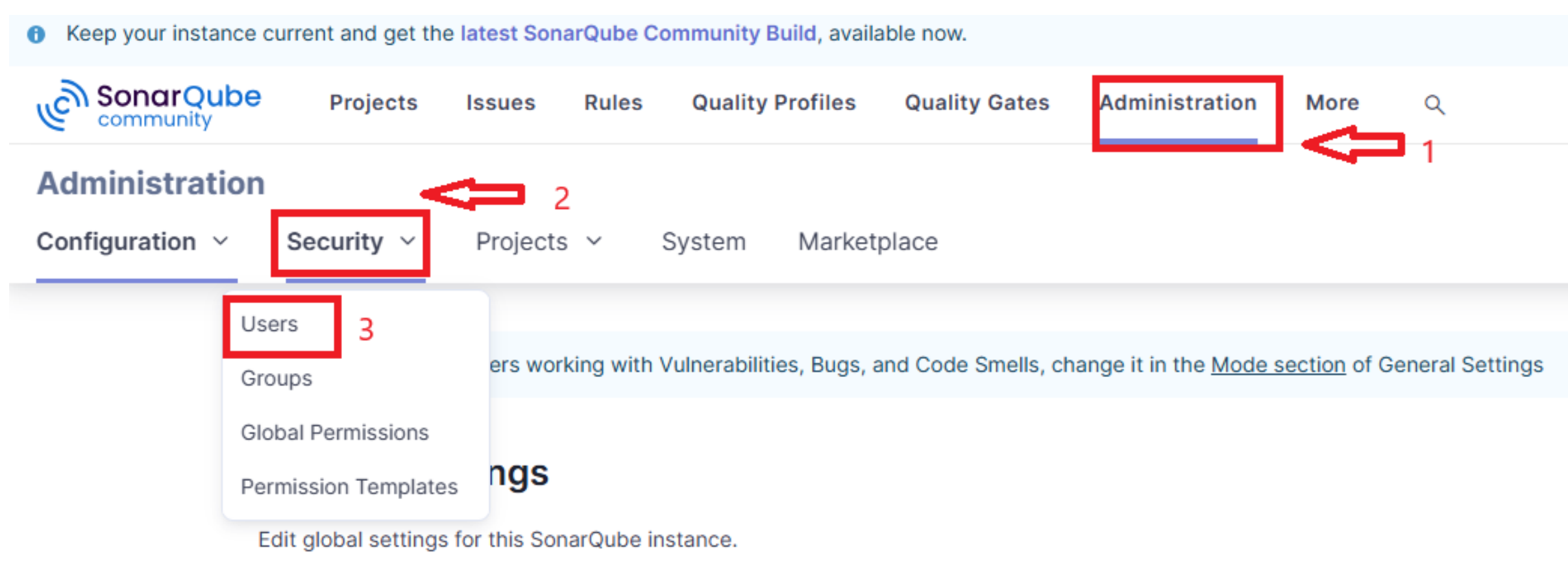


Copy the sonarqube server url



## How do you want to create your project?

Do you want to benefit from all of SonarQube Community Build's features (like repository import and



Click on token to create token for the same user



Users

Create and administer individual users.

Search by login or name...

Filter byAll users?

Name	SCM Accounts	Last connection	Last SonarQube for IDE connection ?	Groups	Tokens	Actions
A Administrator admin		< 1 hour ago	Never	2	0	

1 of 1 shown

Provide token name

## Generate Tokens

Name

Expires in

sonartoken

30 days

Generate

Name	Type	Project	Last use	Created	Expiration	Actions
------	------	---------	----------	---------	------------	---------

## Generate Tokens

Name

Expires in

Enter Token Name

30 days

Generate

✓

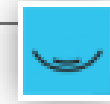
New token "sonartoken" has been created. Make sure you copy it now, you won't be able to see it again!

squ\_fcf504a700d0c557773a93b7157c142a5ff17706

Name	Type	Project	Last use	Created	Expiration	Actions
sonartoken	User		Never	January 16, 2025	February 15, 2025	Revoke



## Server Url



Url for the SonarQube Server to connect to.

## Authentication

### Token

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

## Details

### Service connection name

### Description (optional)

## Security

☒ Grant access permission to all pipelines

[Learn more](#)  
[Troubleshoot](#)

Save

TasksVariablesTriggersOptionsHistory

Save & queueDiscardSummaryQueue

PipelineBuild pipeline

Get sourcesBoardgame.gitdevelop

Agent job 1Run on agent

Maven pom.xmlMaven

Copy Files to: \$(build.artifactstagingdirectory)Copy files

Publish Pipeline ArtifactPublish Pipeline Artifacts

Prepare analysis on SonarQube ServerPrepare Analysis Configuration

Run Code AnalysisRun Code Analysis

Prepare Analysis Configuration

Link settingsView YAMLRemove

Task version7.\*

Display name \*Prepare analysis on SonarQube Server

SonarQube Server Endpoint \*sonar-connectionManage

Choose the way to run the analysis \*  
☐ Integrate with .NET  
☒ Use standalone SonarScanner CLI  
☐ Integrate with Maven or Gradle

Scanner CLI Version

sonar.java.binaries=target

PipelineBuild pipeline

Get sourcesBoardgame.gitdevelop

Agent job 1Run on agent

Maven pom.xmlMaven

Copy Files to: \$(build.artifactstagingdirectory)Copy files

Publish Pipeline ArtifactPublish Pipeline Artifacts

Prepare analysis on SonarQube ServerPrepare Analysis Configuration

Run Code AnalysisRun Code Analysis

☐ Store configuration with my source code (sonar-project.properties)  
☒ Manually provide configuration

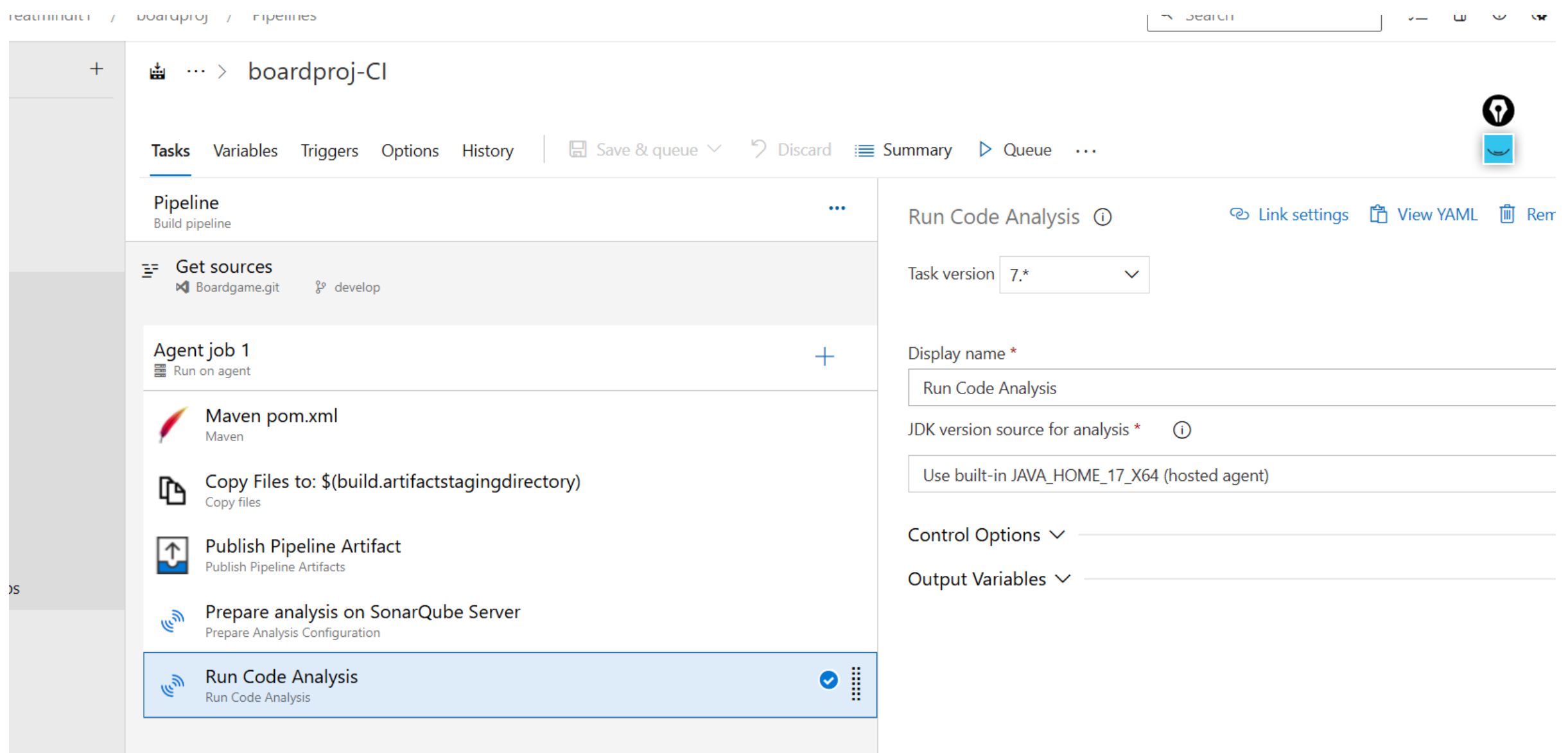
Project Key \*Boardgame

Project NameBoardgame

Project Version1.0

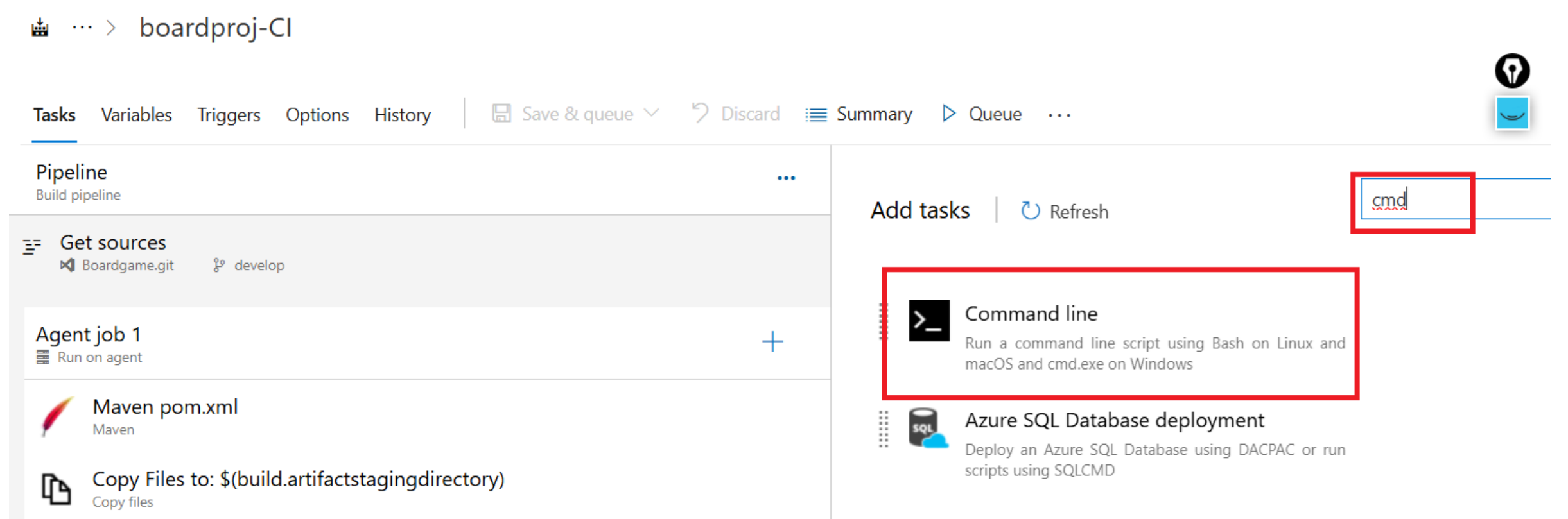
Sources directory root \*.  
Advanced

Additional Properties  
# Additional properties that will be passed to the scanner,  
# Put one key=value per line, example:  
# sonar.exclusions=\*\*/\*.bin  
sonar.java.binaries=target

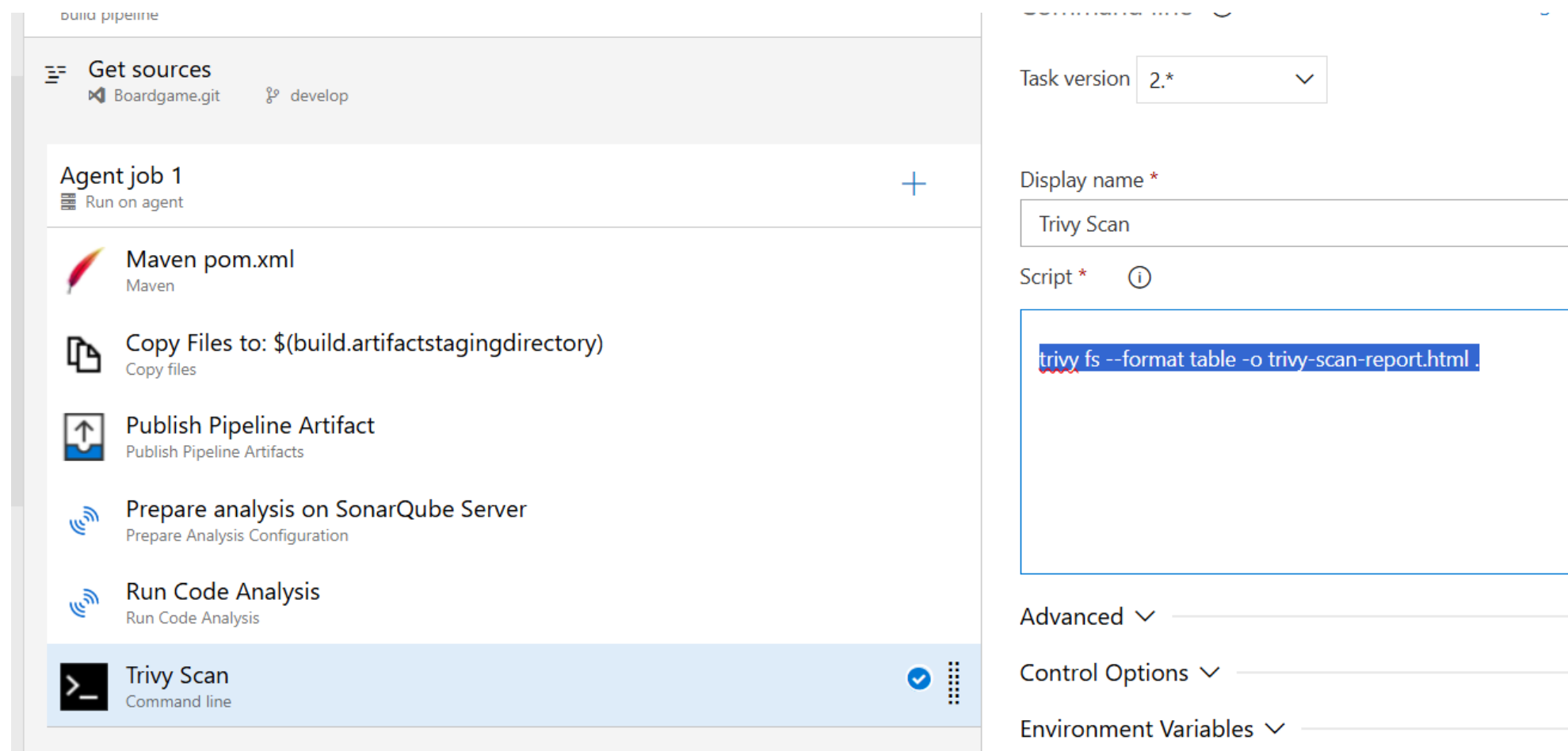


Now I need to run trivy..

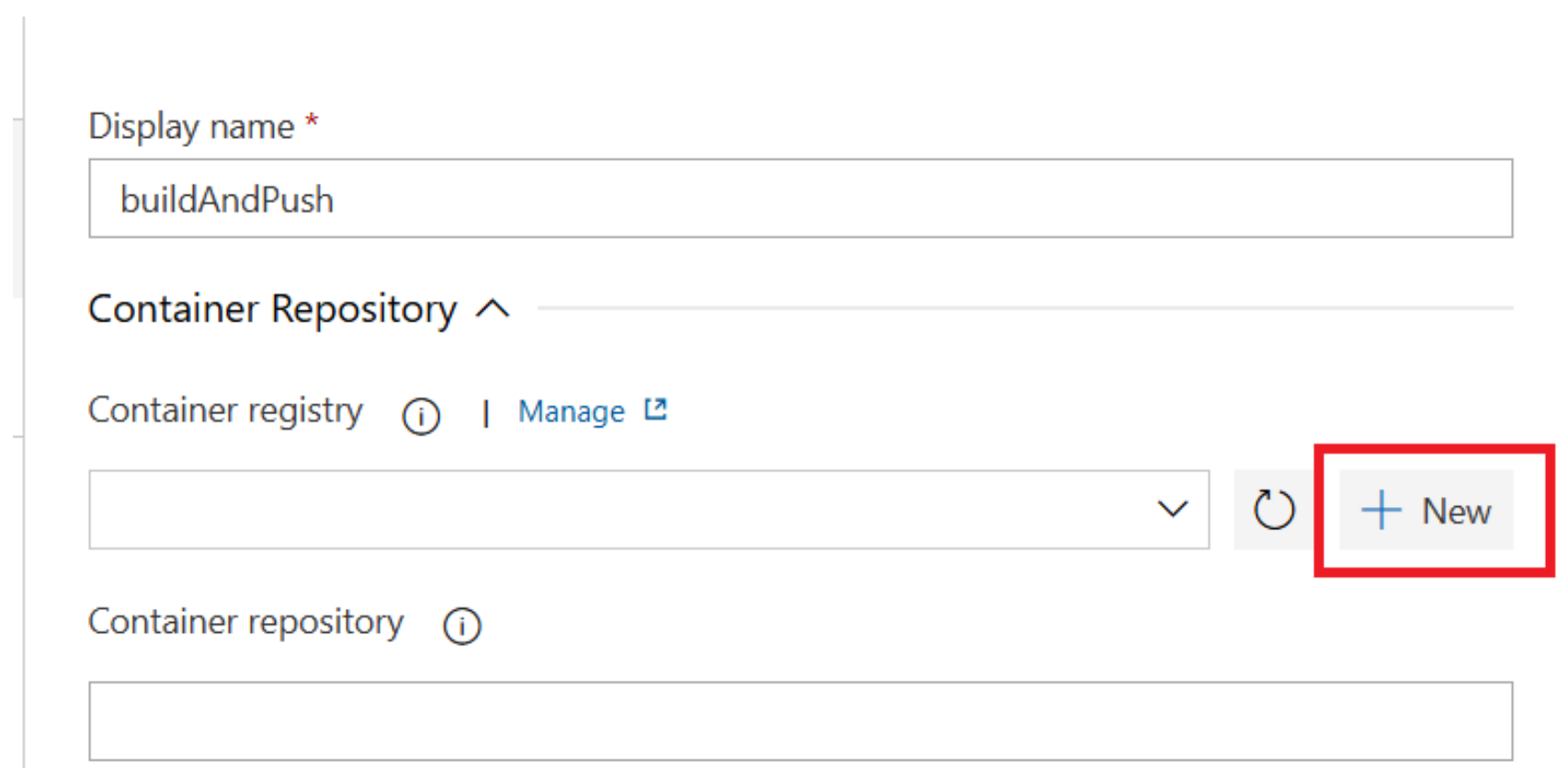
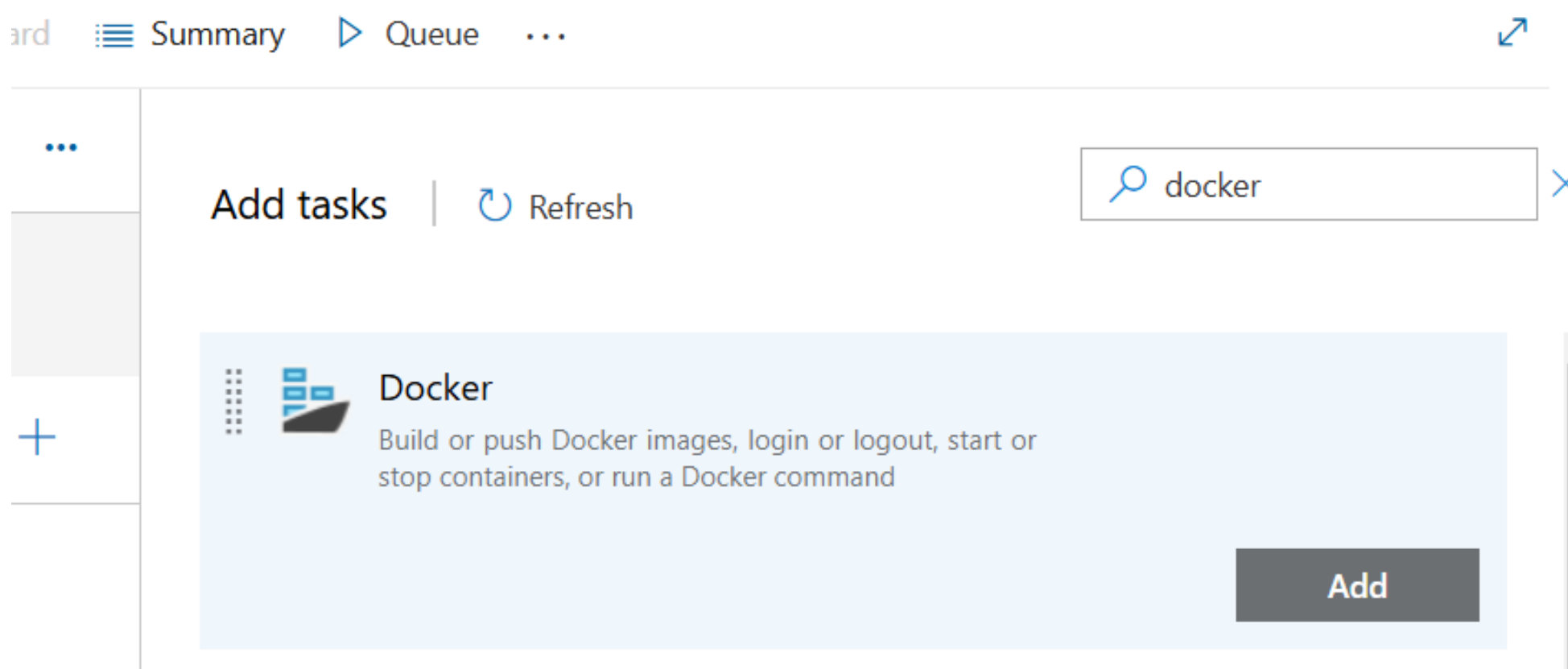
I will search for cmd and trivy is already installed on agent machine



trivy fs --format table -o trivy-scan-report.html .



Now add Docker



New service connection

×

Registry type

☒ Docker Hub ☐ Others ☐ Azure Container Registry

Docker Registry

https://index.docker.io/v1/

Docker ID

kuchalakantikris

Docker Password

.....

Email (optional)

Verify

✔ Verification Succeeded

Details

Service connection name

dockeronn1

dockeronn1

Container repository ⓘ

kuchalakantikris/boardsonar123

Commands ^

Command \* ⓘ

buildAndPush

Dockerfile \* ⓘ

\*\*/Dockerfile

Build context ⓘ

\*\*

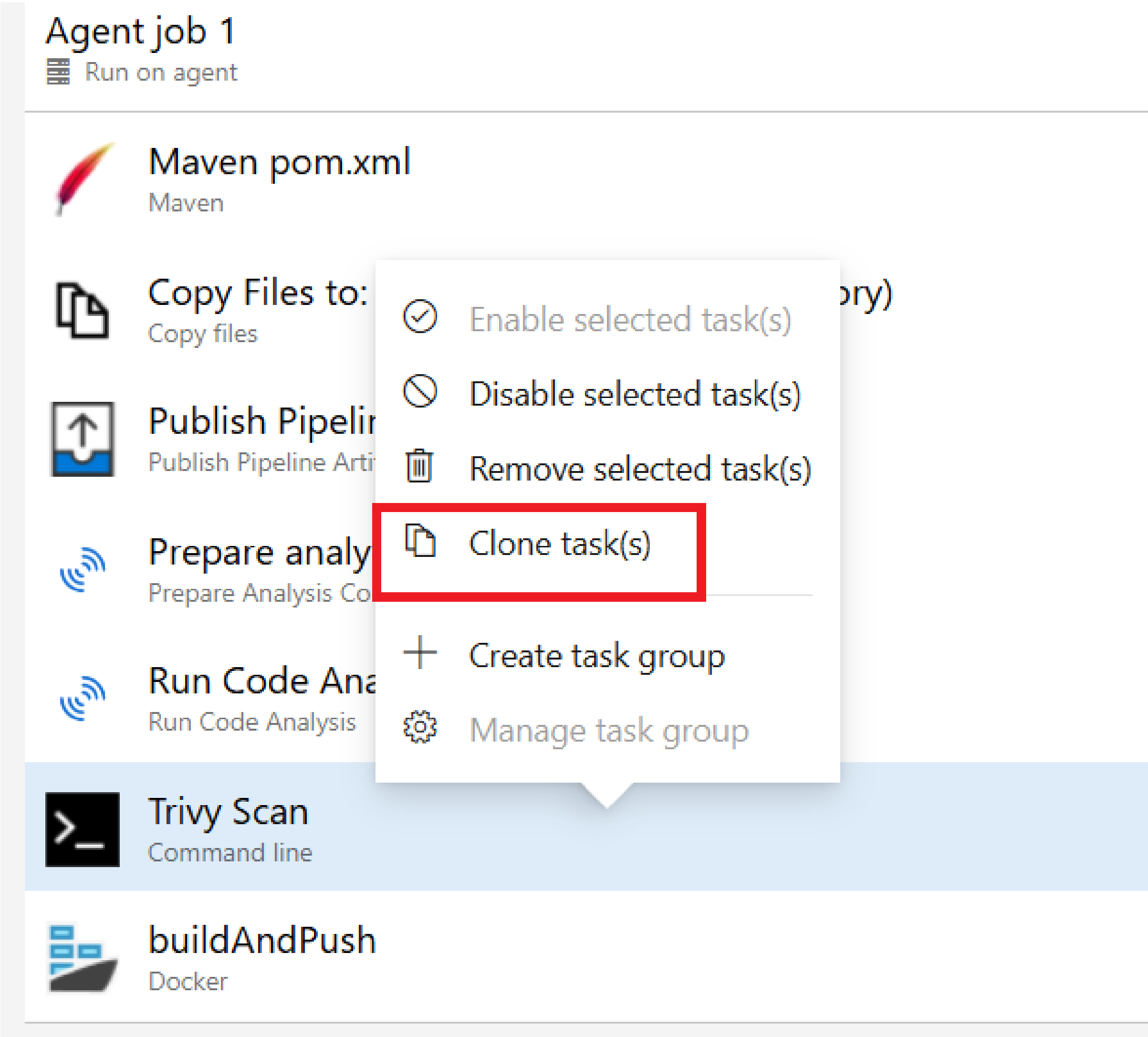
Tags ⓘ

latest

☒ Add Pipeline metadata to image(s) ⓘ

☒ Add base image metadata to image(s) ⓘ

Create close of trivy to scan docker image



```
trivy image --format table -o trivy-imagescan-report.html  
kuchalakantikris/boardsonar123:latest
```

boardproj-CI

TasksVariablesTriggersOptionsHistorySave & queueDiscardSummaryQueue

Get sourcesBoardgame.gitdevelop

Agent job 1Run on agent

Maven pom.xmlMaven

Copy Files to: \$(build.artifactstagingdirectory)Copy files

Publish Pipeline ArtifactPublish Pipeline Artifacts

Prepare analysis on SonarQube ServerPrepare Analysis Configuration

Run Code AnalysisRun Code Analysis

Trivy ScanCommand line

buildAndPushDocker

Trivy Image scanCommand line

Command line

Task version2.\*

Display name \*Trivy Image scan

Script \*

```
trivy image --format table -o trivy-imagescan-report.html kuchalakantikris/boardsonar123:latest
```

Advanced

Control Options

Environment Variables

Output Variables

Now create kubernetes cluster

Create Kubernetes cluster

BasicsNode poolsNetworkingIntegrationsMonitoringSecurityAdvancedTagsReview + create

Subscription \* ⓘ

KrishnaReddy-DEV-ENV

Resource group \* ⓘ

docker

Create new

Cluster details

Cluster preset configuration \*

Dev/Test

To quickly customize your Kubernetes cluster, choose one of the preset configurations above. You can modify these configurations at any time.[Compare presets](#)

Kubernetes cluster name \* ⓘ

testcluster01

Region \* ⓘ

(US) East US

Availability zones ⓘ

None

AKS pricing tier ⓘ

Free

Kubernetes version \* ⓘ

1.30.7 (default)

Previous

Next

Review + create



Change the node size , by clicking on this

in addition to the required primary node pool configured on the basics tab, you can also add optional node pools to handle a variety of workloads [Learn more](#)

+ Add node pool

Delete

<input type="checkbox"/>	Name	Mode	Node size	OS SKU	Node count	Availab
<input type="checkbox"/>	agentpool	System	Standard_D4ds_v5 ...	Ubuntu	2 - 5	None

8 vCPUs are needed for this configuration, but only 0 vCPUs (of 0) remain for the standardDDSV5Family.[Request a quota increase](#)

Home > [Kubernetes services](#) > [Create Kubernetes cluster](#) >

Update node pool ...

testcluster01

Node pool name \*

agentpool

Mode \*

☐ User

☒ System

The primary node pool must be a system node pool to support system pods.

OS SKU \*

☐ Azure Linux

☒ Ubuntu Linux

☐ Windows 2022

☐ Windows 2019

Linux is required for system node pools.

Availability zones

None

Enable Azure Spot instances

☐

Azure Spot instances cannot be used with system node pools.

Node size \*

Standard D2s v3

2 vcpus, 8 GiB memory

[Choose a size](#)

Scale method

☐ Manual

☒ Autoscale - **Recommended**

This option is recommended so that the cluster is automatically sized correctly for the current running workloads

Set authorized IP ranges ⓘ

☐

### Container networking

Network configuration ⓘ

- ☐ Azure CNI Overlay  
Assigns pod IP addresses from a private IP space. Best for scalability
- ☒ Azure CNI Node Subnet  
Previously named Azure CNI. Assigns pod IP addresses from your host VNet. Best for workloads where pods must be reachable by other VNet resources
- ☐ kubenet  
Older, route table-based Overlay with limited scalability. Not recommended for most clusters

Previous

Next

Review + create

Use default values and click on Review and create

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

Home > microsoft.aks-1736991912950 | Overview >

**testcluster01**

Kubernetes service

Search

+ Create Connect Start Stop Delete Refresh Open in mobile Give feedback

**Overview**

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Microsoft Defender for Cloud

Cost analysis

**Essentials**

Resource group : [docker](#)

Power state : Running

Cluster operation status : Succeeded

Subscription : [KrishnaReddy-DEV-ENV](#)

Location : East US

Subscription ID : adfed678-4682-4bb0-a62f-2ebd77f373fd

Kubernetes version : 1.30.7

API server address : testcluster01-dns-1wmbazc7.hcp.eastus.azmk8s.io

Network configuration : [Azure CNI Node Subnet](#)

Node pools : 1 node pool

Container registries : [Attach a registry](#)

Now click on Release pipeline

repos

Pipelines

Pipelines

Environments

Releases

Library

Task groups

Deployment groups

Test Plans



## No release pipelines found

Automate your release process in a few easy steps with a new pipeline

New pipeline

# Click on empty job

boardproj / \_boardproj / releases

All pipelines >

New release pipeline

Pipeline

Tasks

Variables

Retention

Options

History


Artifacts | + Add

Stages | + Add

Select a template

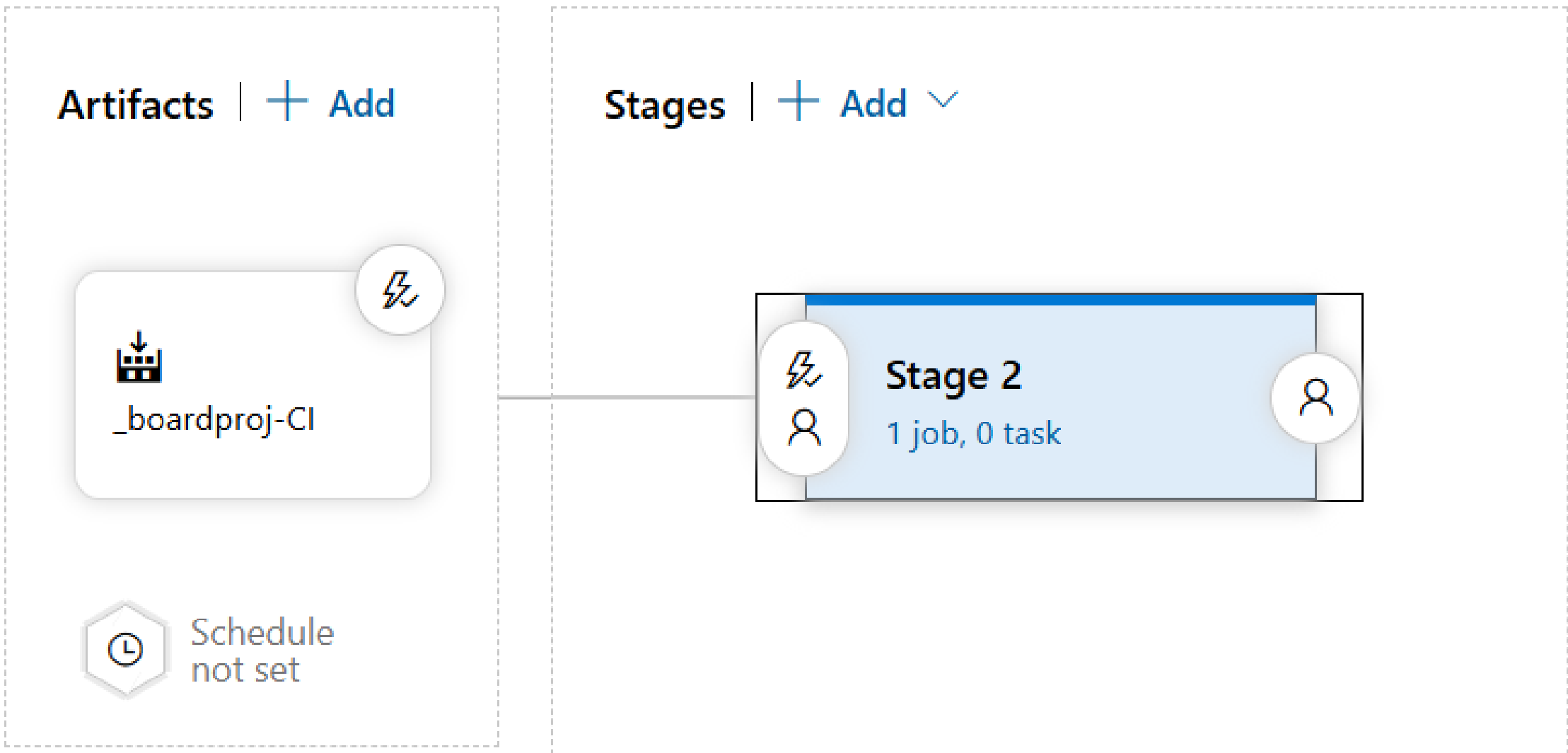
Or start with an [Empty job](#)

Featured




Azure App Service deployment

Deploy your application to Azure App Service. Choose from Web App on Windows, Linux, containers, Function Apps, or ...



Add tasks | Refresh

kubectl

 **Kubectl**  
Deploy, configure, update a Kubernetes cluster in Azure  
Container Service by running kubectl commands

Kubectrl tool installer  
Install Kubectrl on agent machine

Add


Marketplace ^

Stage 2


Deployment process

Agent job

Run on agent

 Install Kubect! latest

Kubect! tool installer

 kubect!

Some settings need attention

Display name \*

kubect!

Kubernetes Cluster ^

Service connection type \*

①

Kubernetes Service Connection

▼

Kubernetes service connection \*

①

|

Manage

🔗

▼

⌂

+ New

① This setting is required.

Namespace ①

Display name \*

kubecti

Kubernetes Cluster ^

Service connection type \* ⓘ

Kubernetes Service Connection

Kubernetes service connection \* ⓘ | Manage

+ New

ⓘ This setting is required.

Namespace ⓘ

### New service connection

## Authentication method

- ☐ KubeConfig
- ☐ Service Account
- ☒ Azure Subscription

## Azure Subscription

KrishnaReddy-DEV-ENV (adfed678-4682-4bb0-a62f-2ebd77... ✓

Cluster

testcluster01 (docker) 

## Namespace

default 

- ☒ Use cluster admin credentials

Details

Service connection name

k8s-conn

Description (optional)

Description (optional):

## Security

- ☒
- Grant access permission to all pipelines

Kubernetes service connection \* ⓘ | [Manage](#)

**k8s-conn1** [+ New](#)

Namespace ⓘ

**default**

Commands ^

Command ⓘ

**apply**

☒ Use configuration ⓘ

Configuration type ⓘ

☒ File path ☐ Inline configuration

File path \* ⓘ [Browse File path](#)

**\$(System.DefaultWorkingDirectory)/\_boardproj-CI/drop/deployment-service.yaml**

Azure DevOps greatmindit1 / boardproj / Pipelines / Releases / New release pipeline / Release-1 Search

**boardproj** +

- Overview
- Boards
- Repos
- Pipelines**
- Pipelines
- Environments
- Releases
- Library

New release pipeline > Release-1 > Stage 1 Succeeded

← Pipeline Tasks Variables **Logs** Tests [Deploy](#) [Cancel](#) [Refresh](#) [Download all logs](#) [Edit](#)

Deployment process Succeeded

**Agent job** Succeeded

**Agent job**

Pool: Hosted Windows 2019 with ... · Agent: Hosted Agent

- Initialize job · succeeded
- Download artifact - \_boardproj-CI - drop · succeeded
- Install Kubectl latest · succeeded
- kubectl apply · succeeded
- Finalize Job · succeeded

## testcluster01 | Services and ingresses

Search

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Microsoft Defender for Cloud
- Cost analysis
- Kubernetes resources
  - Namespaces
  - Workloads
  - Services and ingresses**
  - Storage
  - Configuration

+ Create Delete Refresh Show labels Give feedback

Services Ingresses

Filter by service name

Enter the full service name

Filter by namespace

default

Add label filter

<input type="checkbox"/>	Name	Namespace	Status	Type	Cluster IP	External IP	Pc
<input type="checkbox"/>	kubernetes	default	Ok	ClusterIP	10.0.0.1		44
<input checked="" type="checkbox"/>	boardgame-ssvc	default	Ok	LoadBalancer	10.0.14.196	135.234.204.183	80

Not secure 135.234.204.183/2

Welcome to BoardGame Database! 🤖

## Information of Clue

Game Level: 2

Players: 1 - 6 people

Game Type: Strategy Game

[Click Here](#) for user reviews

For more services, login [Here](#)

To join to the service, [Click](#) here

