AZURE
PART 2
Configurea pipeline to deploy infrastructure

1. Create a separate resource group and deploy azure storage account

At first login on Azure Portal and add new Resource group.

Home > Resource groups >

Create a resource group

Basics | Tags | Review + create

Resource group - A container that holds related resources for an Azure solution. The resource group can include all the resources for the solution, or only those resources that you want to manage as a group. You decide how you want to allocate resources to resource groups based on what makes the most sense for your organization. Learn more

Project details

Subscription * : ForStudy

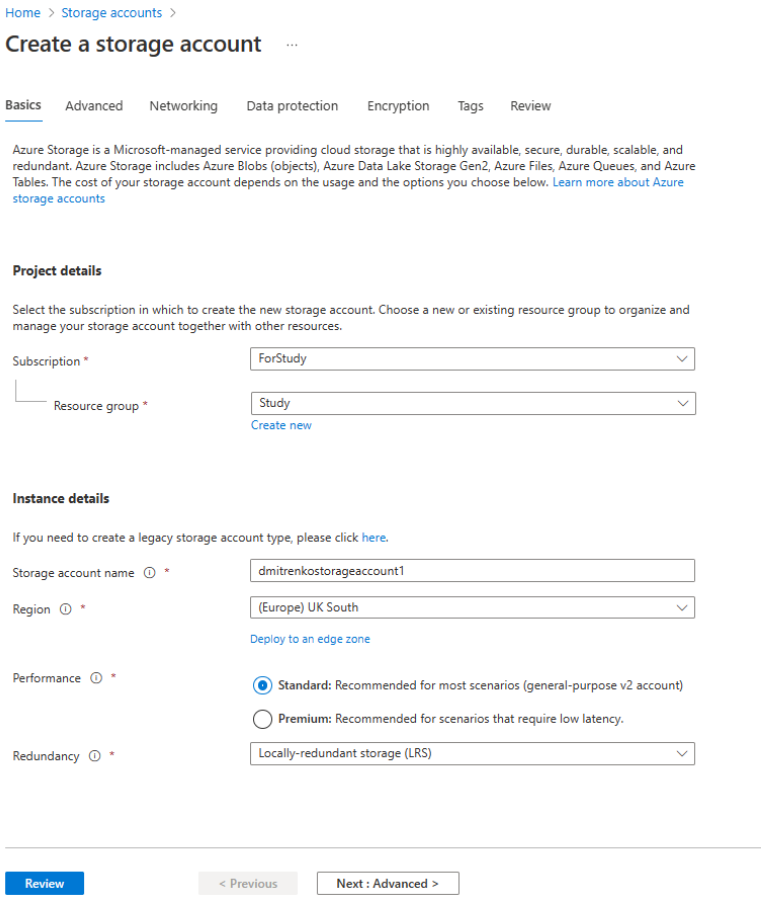
Resource group * : Study1

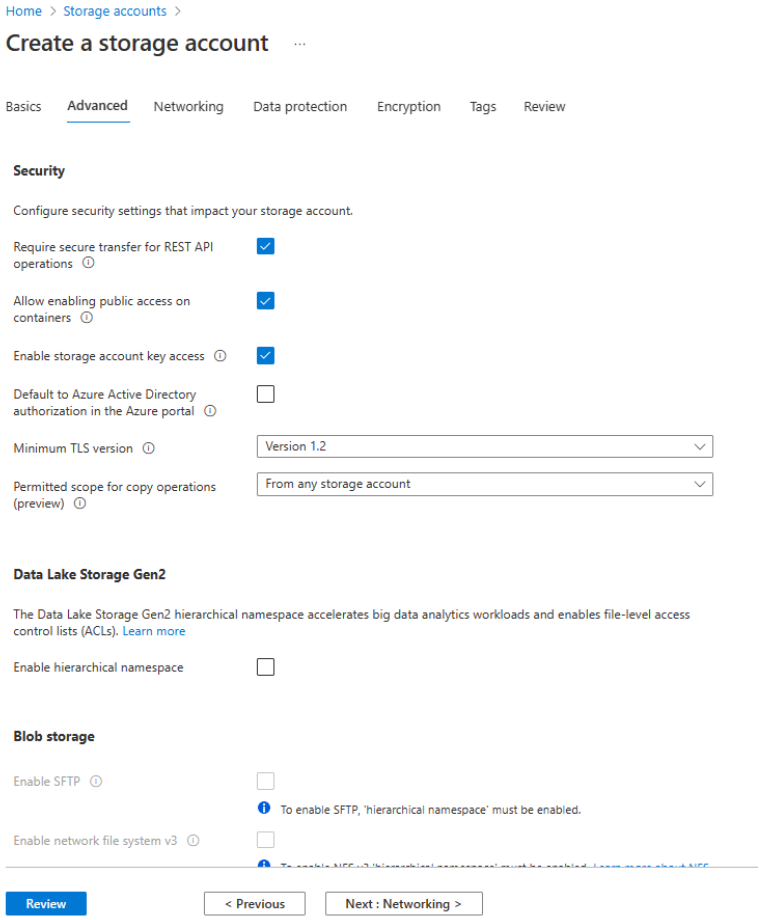
Resource details

Region * : (Europe) UK South

Review + create | < Previous | Next : Tags >

Now go to Storage Accounts and create new Storage Account:





Home > Storage accounts >

Create a storage account ...

Basics Advanced **Networking** Data protection Encryption Tags Review

Network connectivity

You can connect to your storage account either publicly, via public IP addresses or service endpoints, or privately, using a private endpoint.

Network access *

- (•) Enable public access from all networks
- ( ) Enable public access from selected virtual networks and IP addresses
- ( ) Disable public access and use private access

ⓘ Enabling public access from all networks might make this resource available publicly. Unless public access is required, we recommend using a more restricted access type. Learn more

Network routing

Determine how to route your traffic as it travels from the source to its Azure endpoint. Microsoft network routing is recommended for most customers.

Routing preference ⓘ *

- (•) Microsoft network routing
- ( ) Internet routing

Review | < Previous | Next : Data protection >

Home > Storage accounts >

Create a storage account ...

Basics Advanced Networking **Data protection** Encryption Tags Review

Recovery

Protect your data from accidental or erroneous deletion or modification.

- [ ] Enable point-in-time restore for containers
  Use point-in-time restore to restore one or more containers to an earlier state. If point-in-time restore is enabled, then versioning, change feed, and blob soft delete must also be enabled. Learn more
- [x] Enable soft delete for blobs
  Soft delete enables you to recover blobs that were previously marked for deletion, including blobs that were overwritten. Learn more
  Days to retain deleted blobs ⓘ 7
- [x] Enable soft delete for containers
  Soft delete enables you to recover containers that were previously marked for deletion. Learn more
  Days to retain deleted containers ⓘ 7
- [x] Enable soft delete for file shares
  Soft delete enables you to recover file shares that were previously marked for deletion. Learn more
  Days to retain deleted file shares ⓘ 7

Tracking

Manage versions and keep track of changes made to your blob data.

- [ ] Enable versioning for blobs
  Use versioning to automatically maintain previous versions of your blobs. Learn more

  Consider your workloads, their impact on the number of versions created, and the resulting costs. Optimize costs by automatically managing the data lifecycle. Learn more
- [ ] Enable blob change feed
  Keep track of create, modification, and delete changes to blobs in your account. Learn more

Review | < Previous | Next : Encryption >

Home > Storage accounts >

Create a storage account ...

Basics Advanced Networking Data protection **Encryption** Tags Review

Encryption type *
- (•) Microsoft-managed keys (MMK)
- ( ) Customer-managed keys (CMK)

Enable support for customer-managed keys
- (•) Blobs and files only
- ( ) All service types (blobs, files, tables, and queues)

⚠ This option cannot be changed after this storage account is created.

Enable infrastructure encryption [ ]

Review | < Previous | Next : Tags >

Home > Storage accounts >

Create a storage account ...

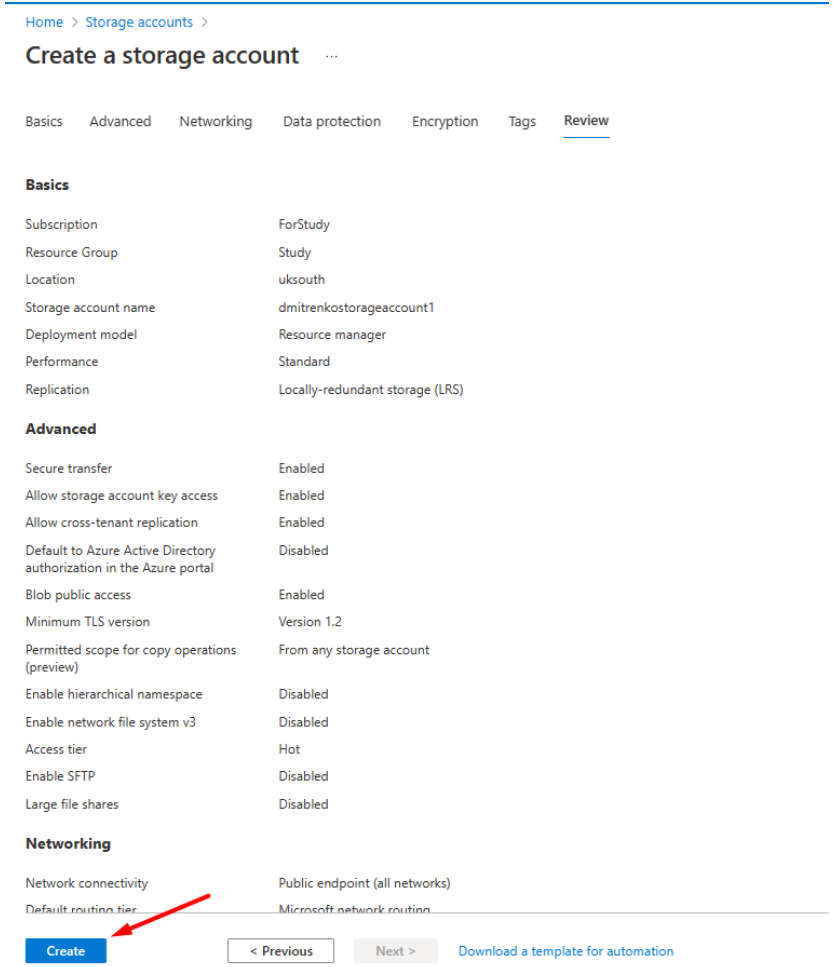
Basics Advanced Networking Data protection Encryption **Tags** Review

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. Learn more about tags

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name		Value	Resource
name	:	forTerraform	All resources selected
	:		All resources selected

Review | < Previous | Next : Review >


Home > Storage accounts >
Create a storage account ...
Basics Advanced Networking Data protection Encryption Tags Review
Basics
Subscription ForStudy
Resource Group Study
Location uksouth
Storage account name dmitrenkostorageaccount1
Deployment model Resource manager
Performance Standard
Replication Locally-redundant storage (LRS)
Advanced
Secure transfer Enabled
Allow storage account key access Enabled
Allow cross-tenant replication Enabled
Default to Azure Active Directory authorization in the Azure portal Disabled
Blob public access Enabled
Minimum TLS version Version 1.2
Permitted scope for copy operations (preview) From any storage account
Enable hierarchical namespace Disabled
Enable network file system v3 Disabled
Access tier Hot
Enable SFTP Disabled
Large file shares Disabled
Networking
Network connectivity Public endpoint (all networks)
Default routing tier Microsoft network routing
Create
< Previous
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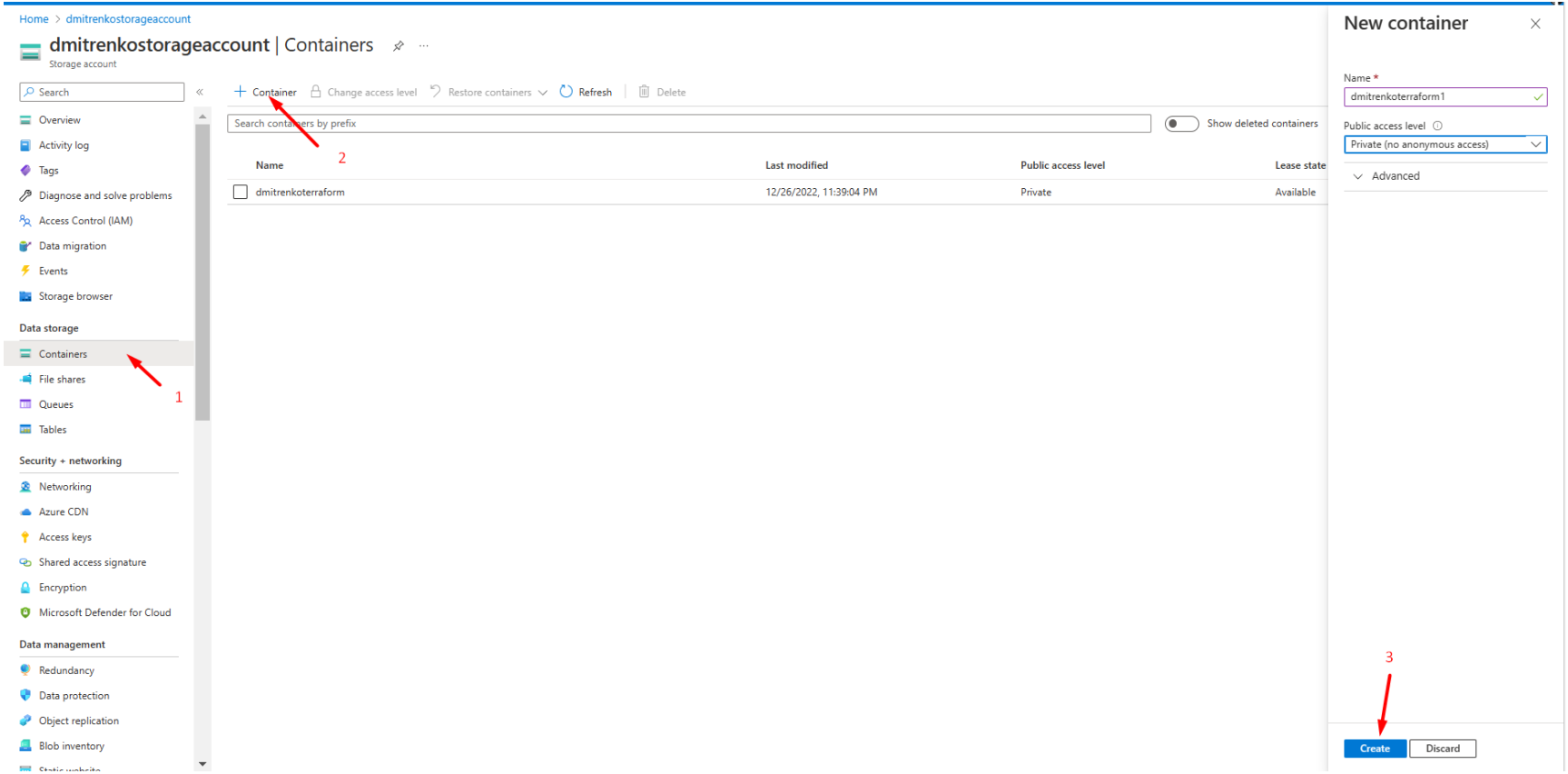
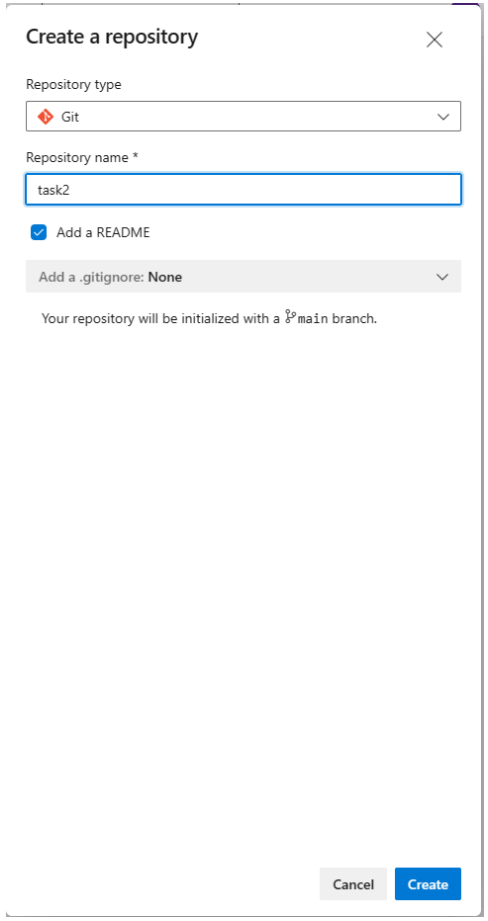
Download a template for automation

Enter to storage account and create container:

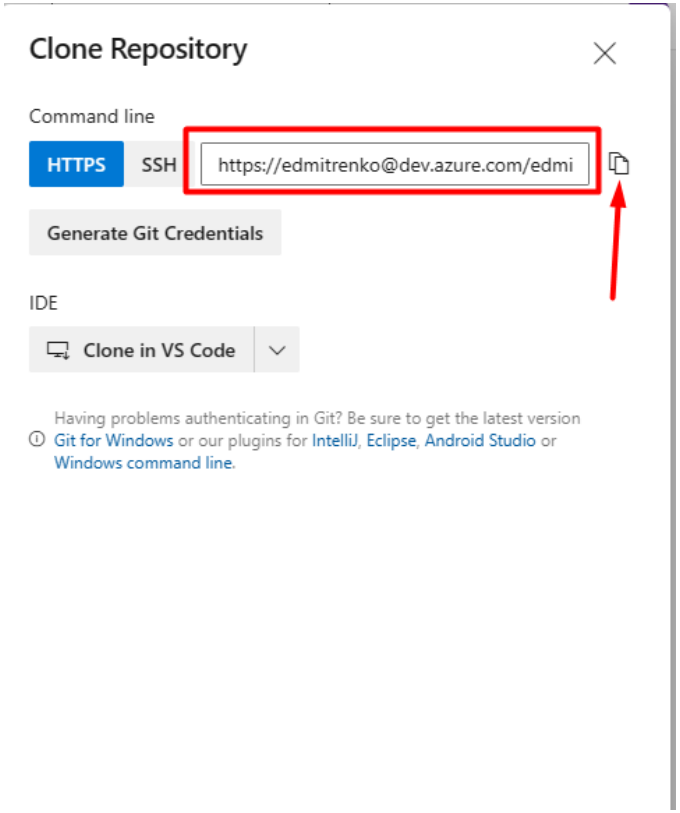


Created new Git repo in my azure devops account:

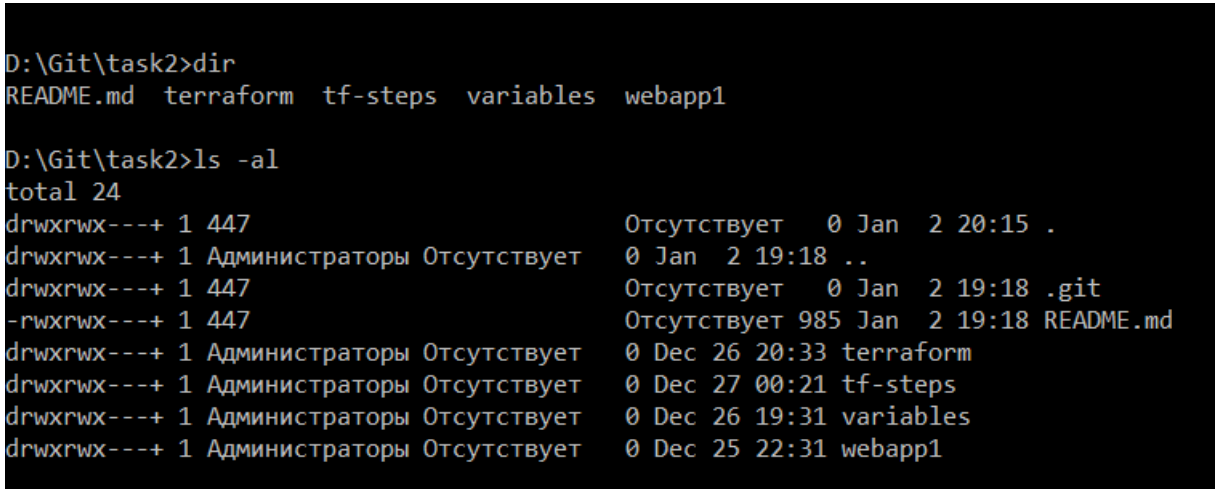
Choose your project -> Repo -> new repository



Clone new repository to my local machine:



On the local machime create folder infrastructure for future project:



After push updated repo to Azure DevOps:

git add .

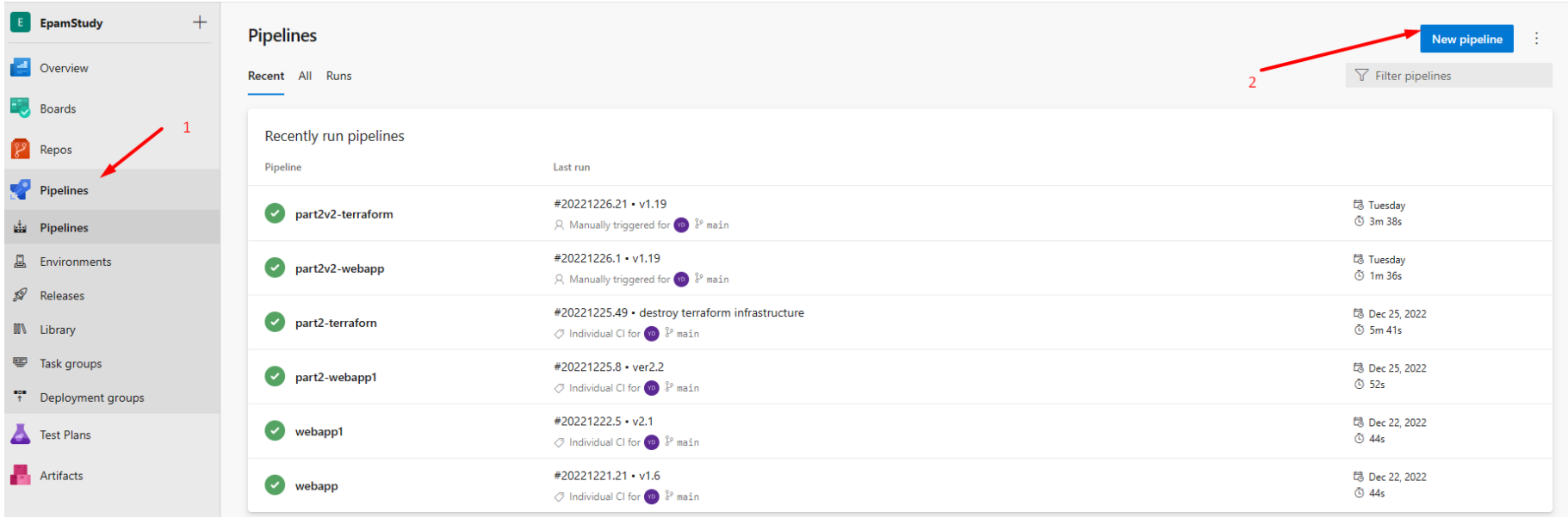
git commit -m „ver1.0“

git push

After create yaml pipeline:

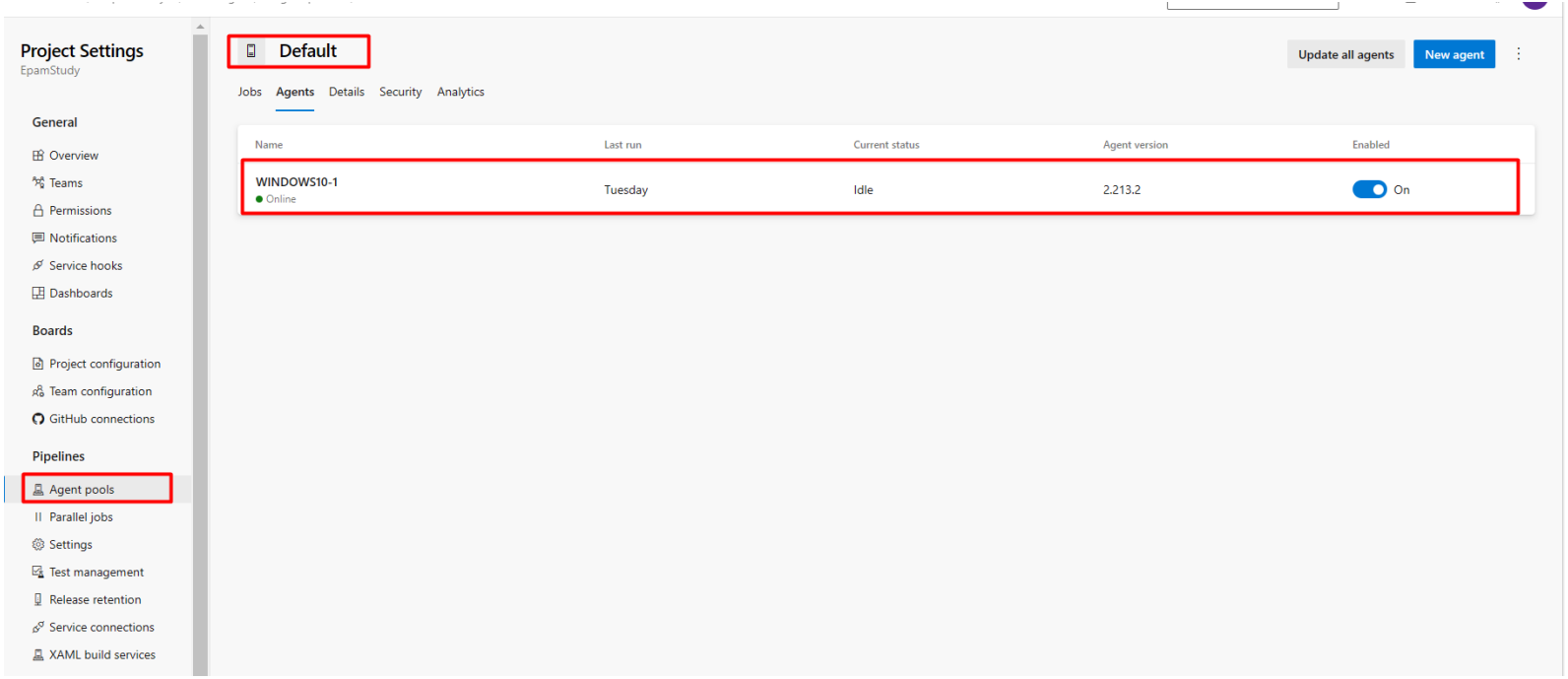
In Azure DevOps interface:

Pipelines → New pipeline → Create yml pipeline – terraform-pipelines.yml



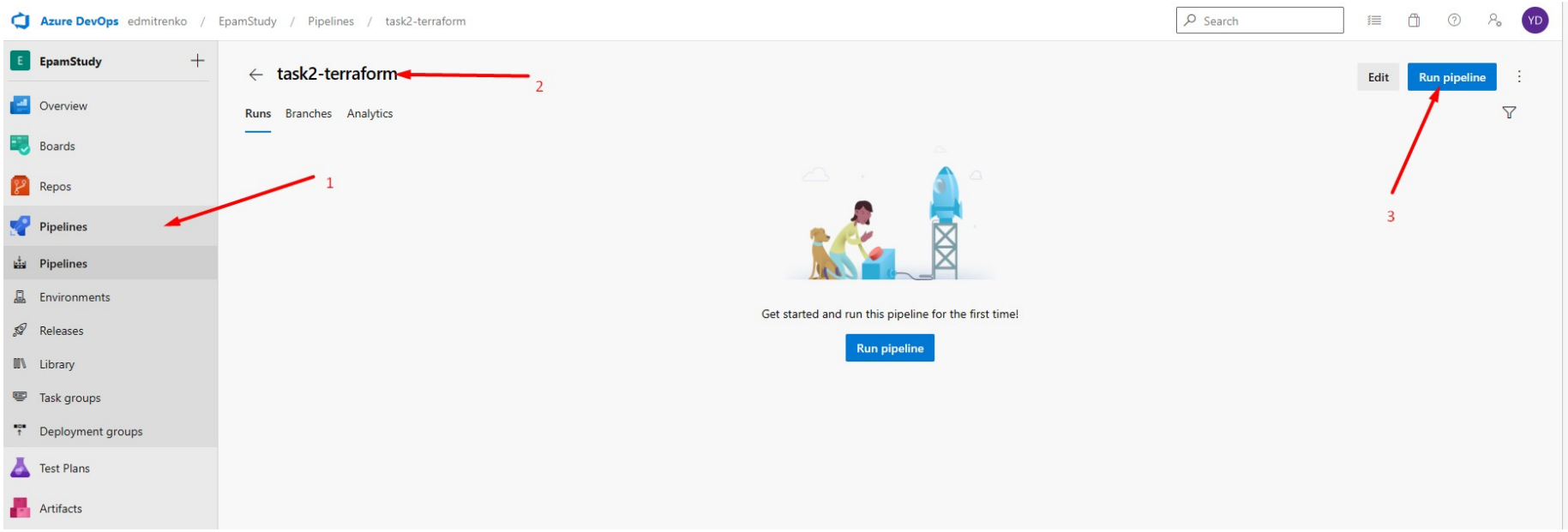
terraform-pipelines.yml:
https://dev.azure.com/edmitrenko/EpamStudy/_git/task2?path=/terraform-pipelines.yml

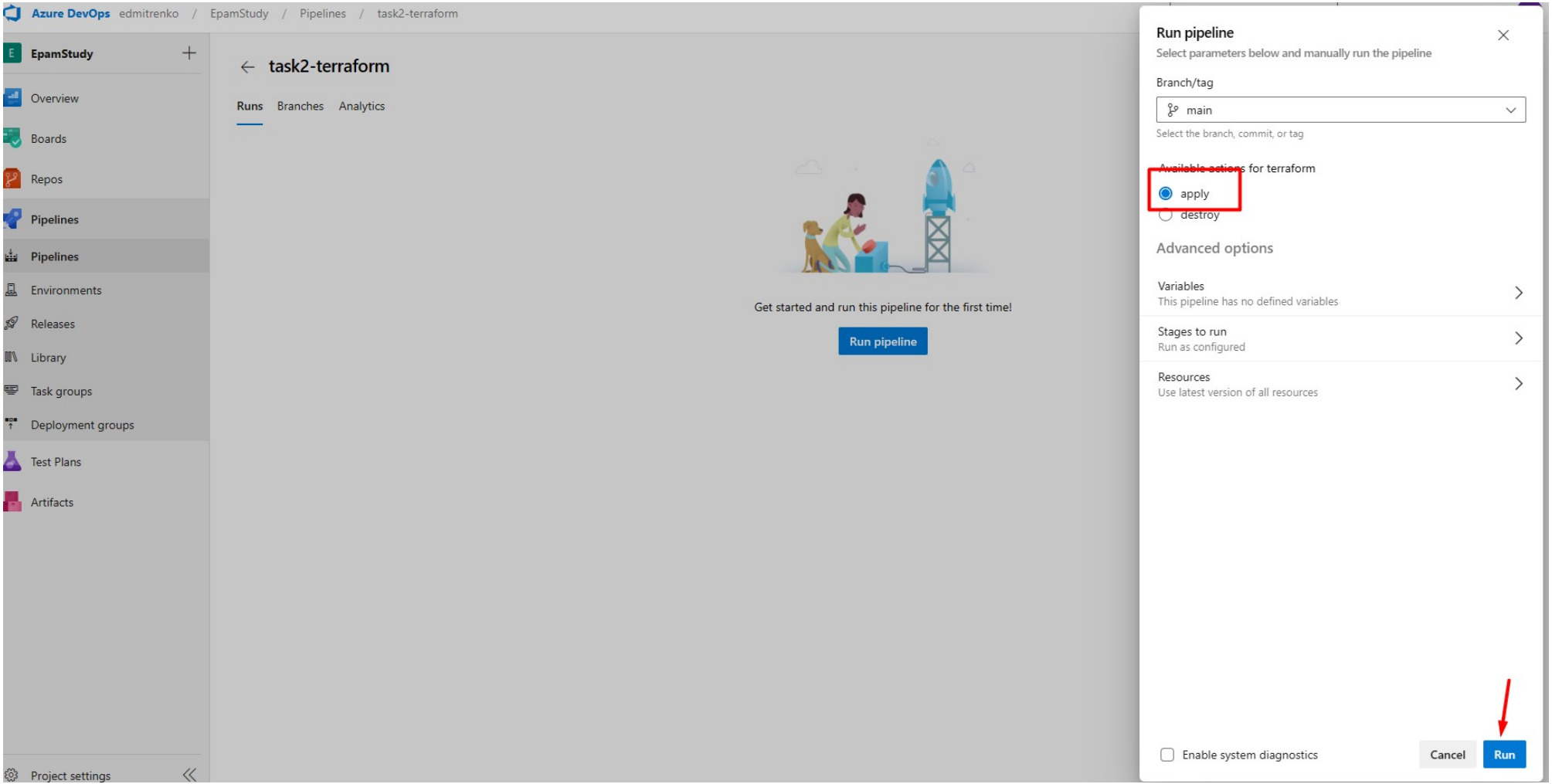
All pipelines I started in Default Agent Pool where I added agent on windows 10



We can run pipeline:

Pipelines→ choose pipeline → push button Run Pipeline




Azure DevOps edmitrenko / EpamStudy / Pipelines / task2-terraform
EpamStudy
Overview
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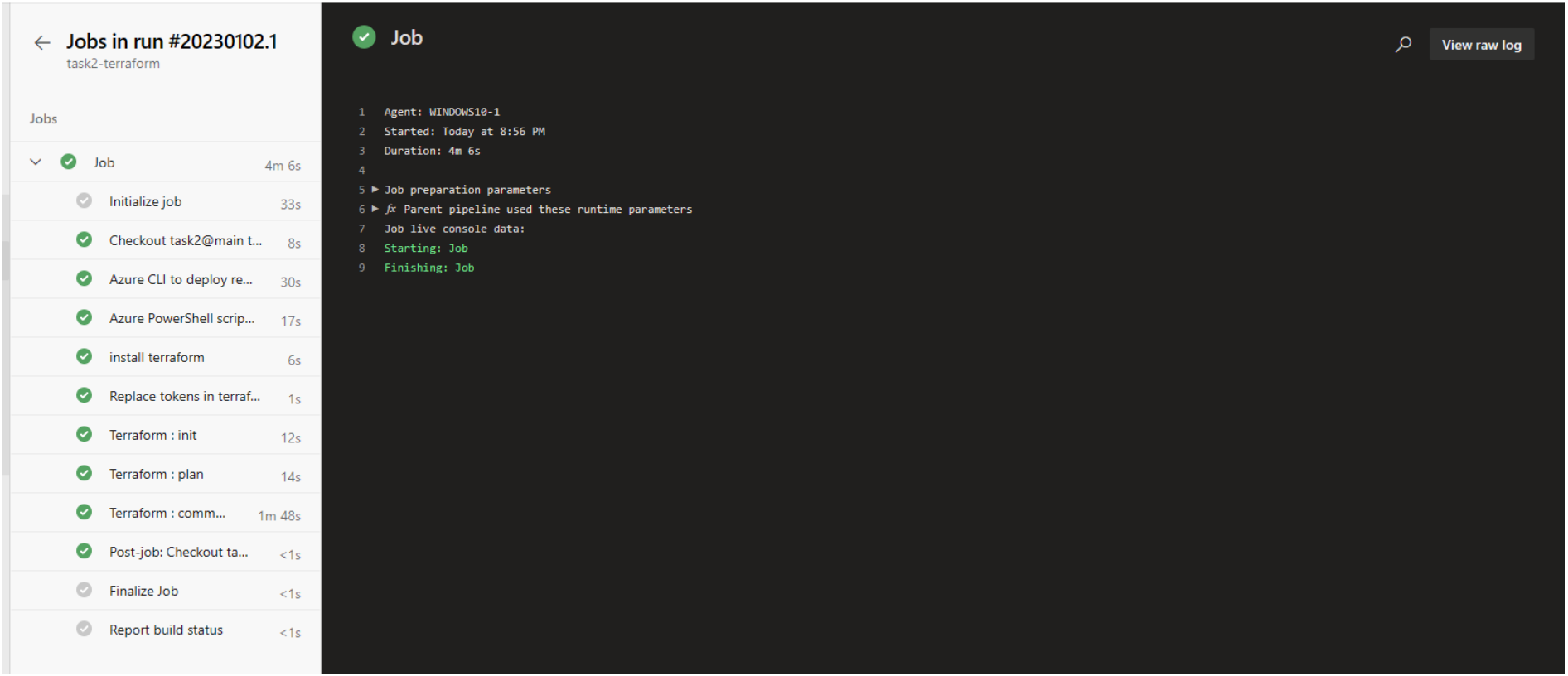
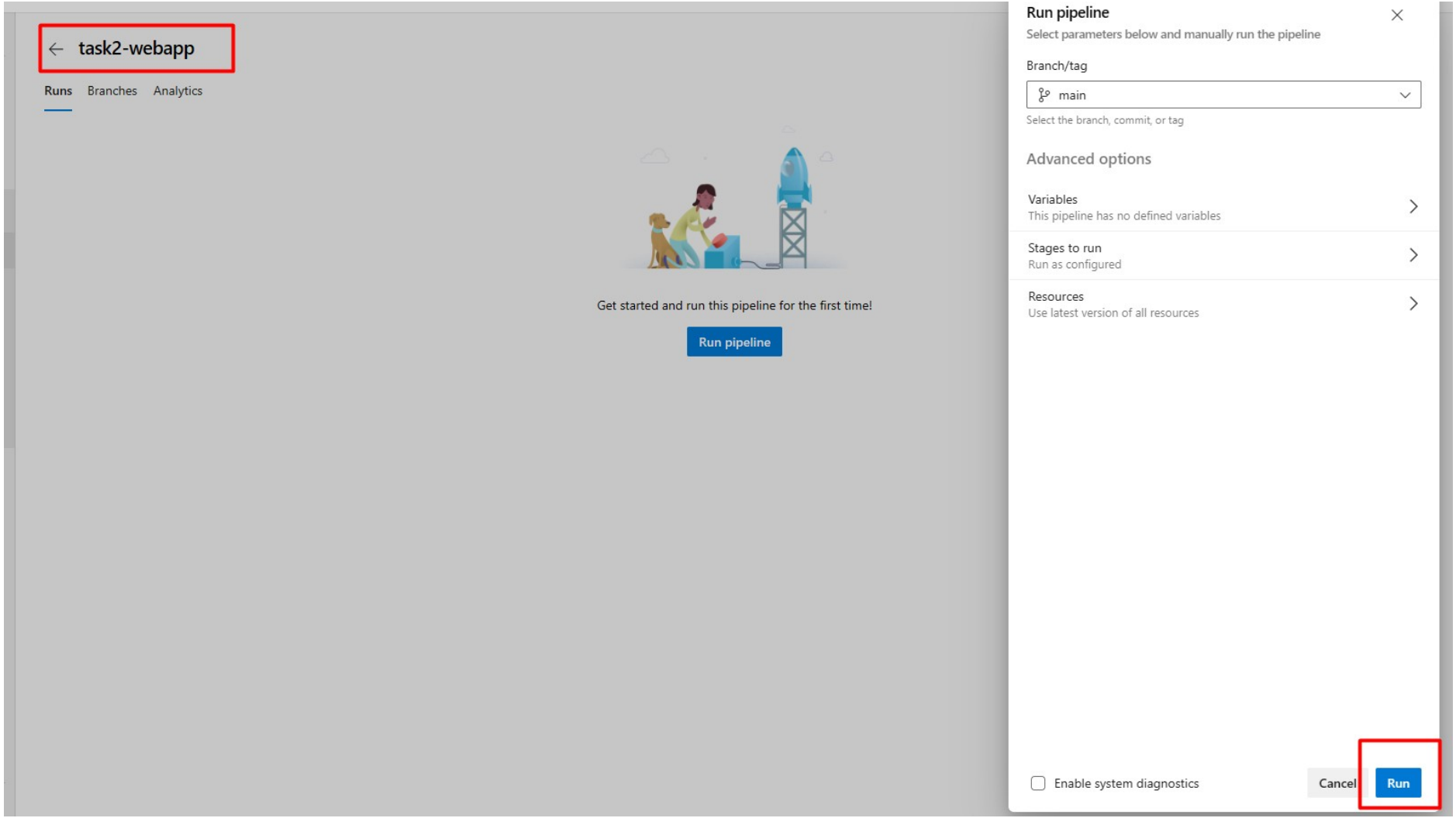
Project settings
task2-terraform
Runs Branches Analytics
Get started and run this pipeline for the first time!
Run pipeline
Run pipeline
Select parameters below and manually run the pipeline
Branch/tag
main
Select the branch, commit, or tag
Available actions for terraform
apply
destroy
Advanced options
Variables
This pipeline has no defined variables
Stages to run
Run as configured
Resources
Use latest version of all resources
Enable system diagnostics
Cancel
Run

Result of running pipeline:

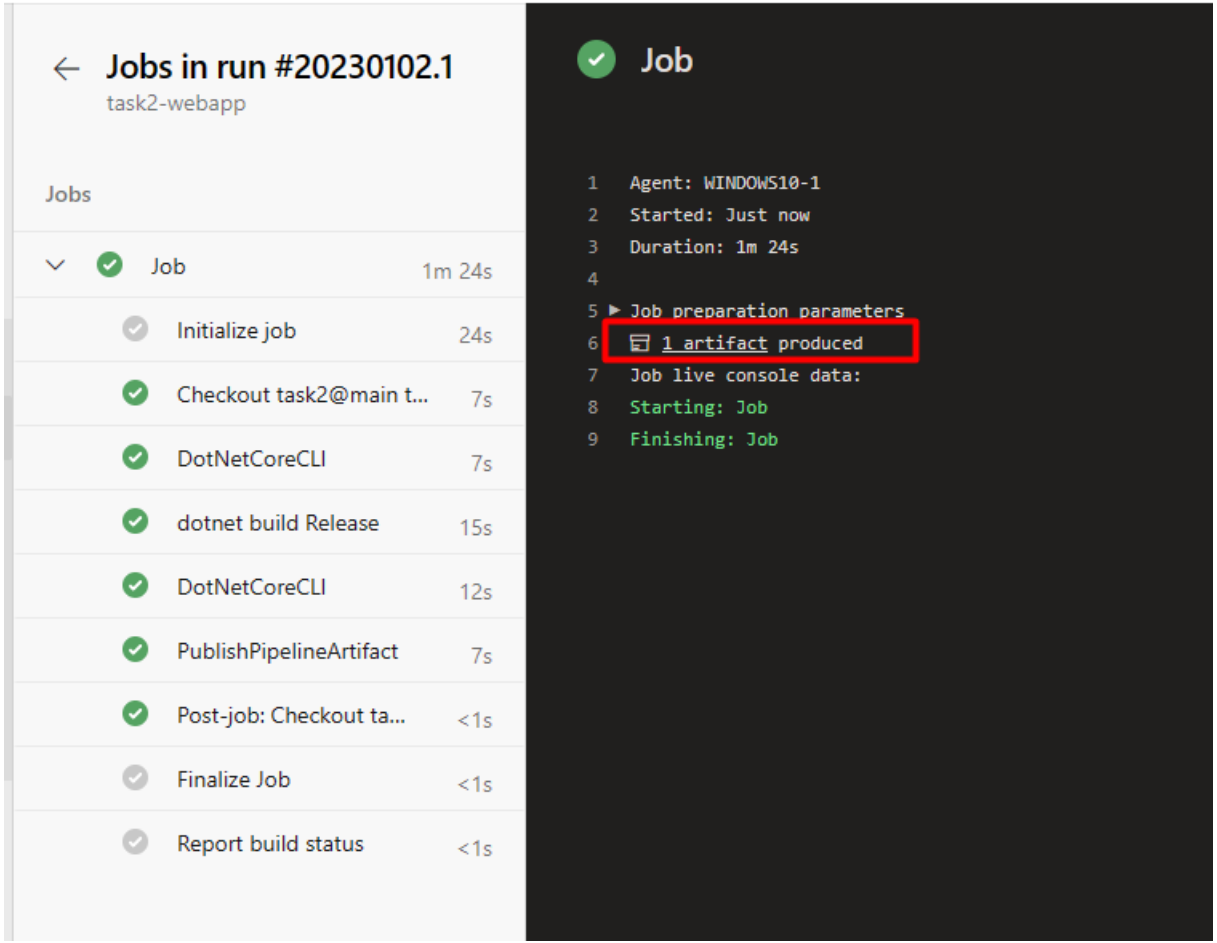


Now create new pipeline for creating Artifacts of our webapp.
Yml file of webapp-pipeline we can get here:
https://dev.azure.com/edmitrenko/EpamStudy/_git/task2?path=/webapp-pipelines.yml

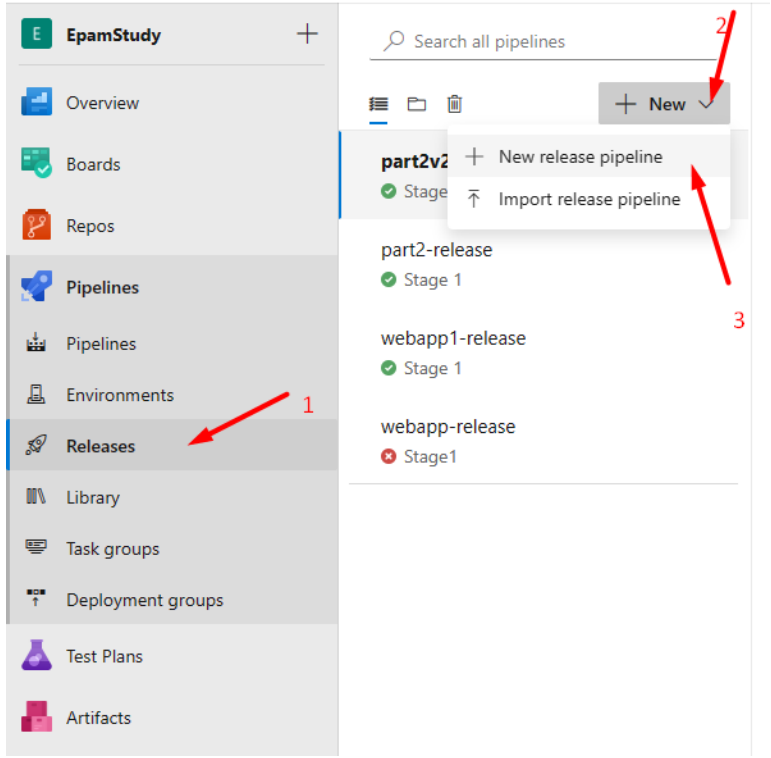
Now run this pipeline:

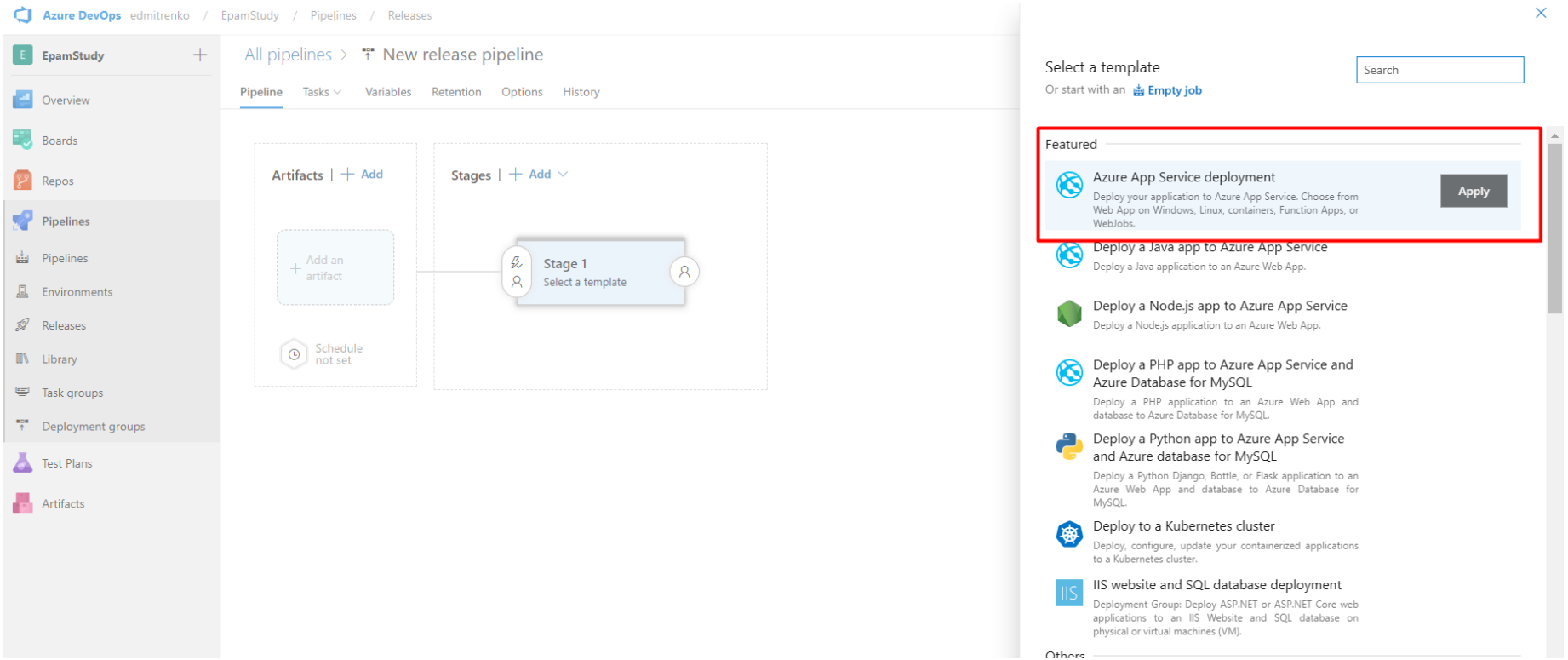

task2-webapp
Runs
Branches
Analytics
Get started and run this pipeline for the first time!
Run pipeline
Run pipeline
Select parameters below and manually run the pipeline
Branch/tag
main
Select the branch, commit, or tag
Advanced options
Variables
This pipeline has no defined variables
Stages to run
Run as configured
Resources
Use latest version of all resources
Enable system diagnostics
Cancel
Run

As a resul one Artifact produced:



Now we create Release pipeline: *Pipelines* → *Releases* → *New Release Pipeline*




Azure DevOps edmitrenko / EpamStudy / Pipelines / Releases
EpamStudy
Overview
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Test Plans
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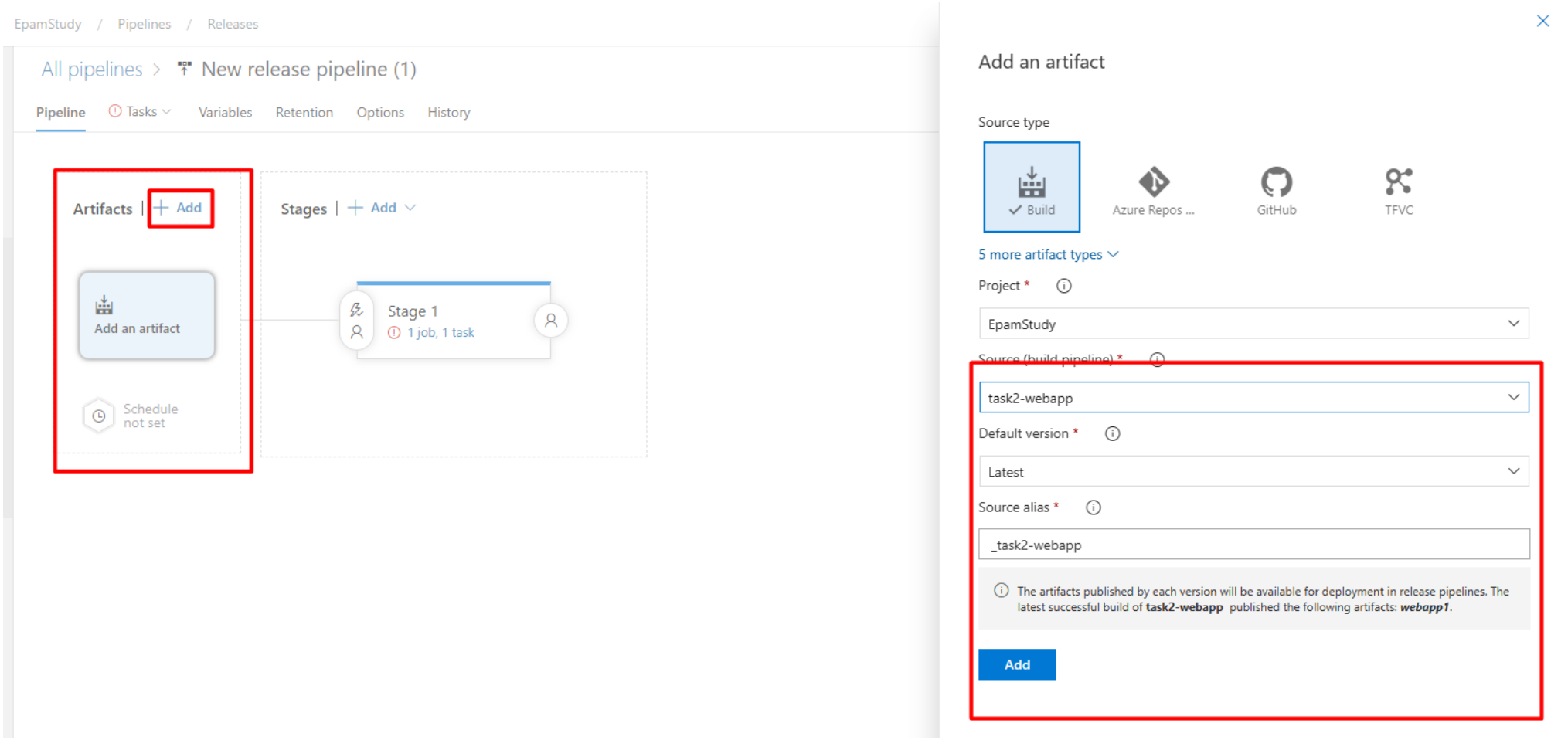
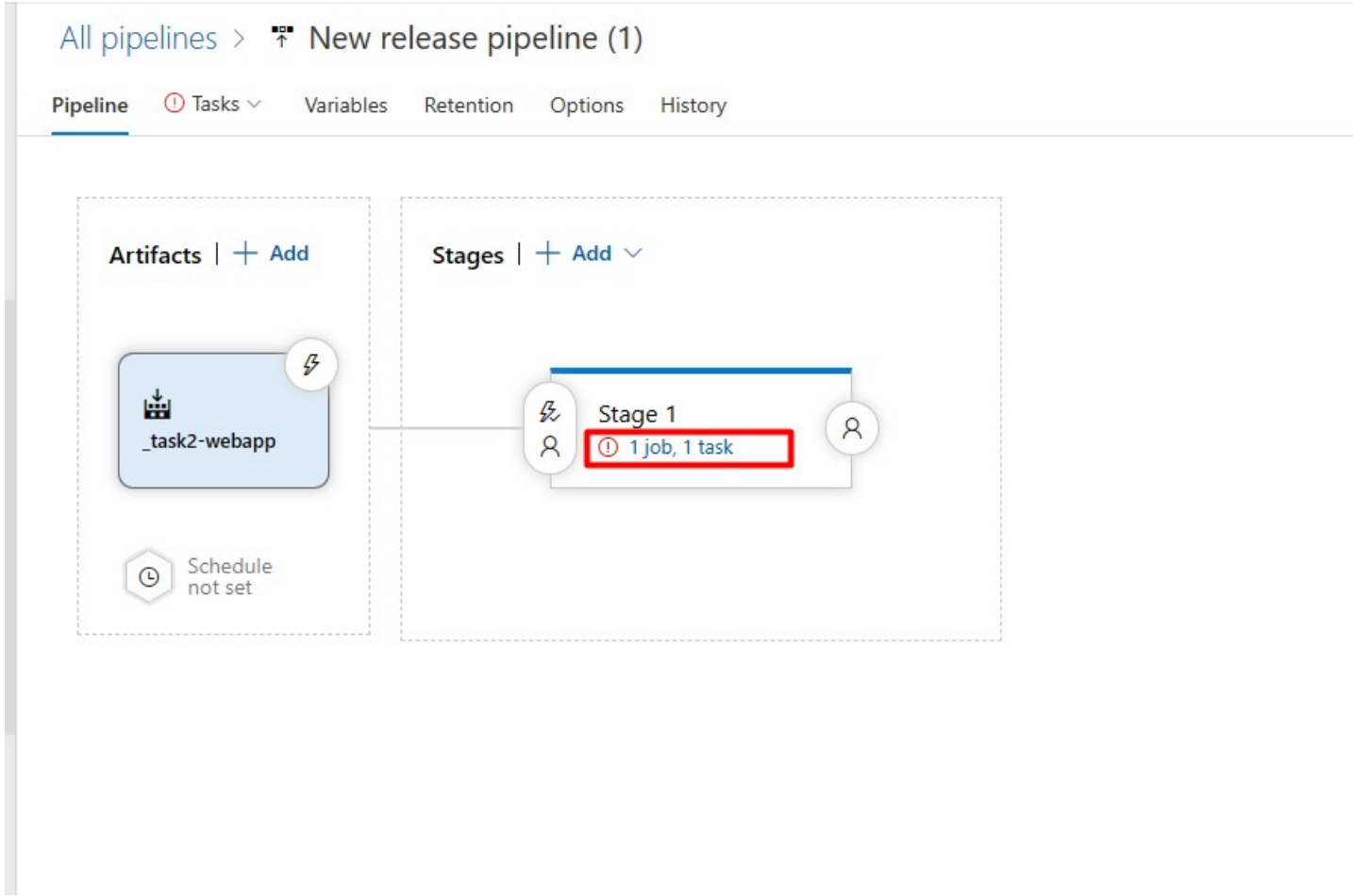
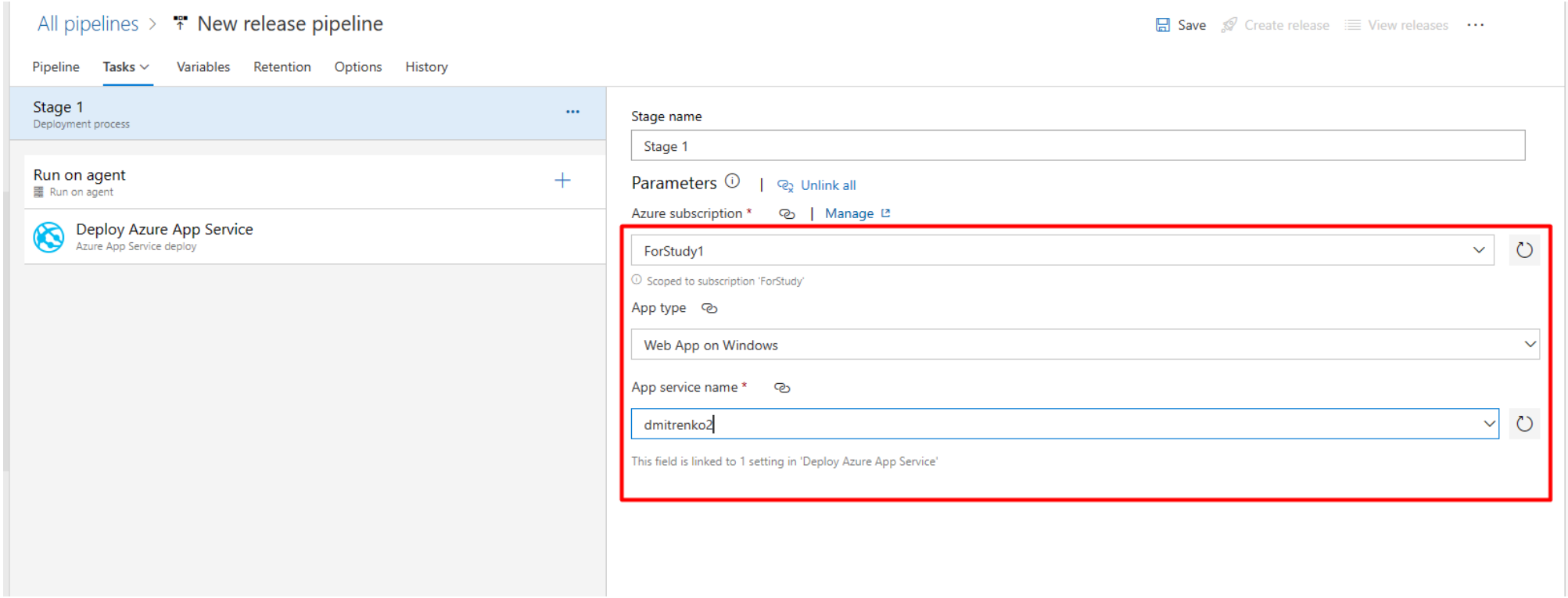
All pipelines > New release pipeline
Pipeline
Tasks
Variables
Retention
Options
History
Artifacts | Add
Add an artifact
Schedule not set
Stages | Add
Stage 1
Select a template
Select a template
Or start with an Empty job
Search
Featured
Azure App Service deployment
Deploy your application to Azure App Service. Choose from Web App on Windows, Linux, containers, Function Apps, or WebJobs.
Apply
Deploy a Java app to Azure App Service
Deploy a Java application to an Azure Web App.
Deploy a Node.js app to Azure App Service
Deploy a Node.js application to an Azure Web App.
Deploy a PHP app to Azure App Service and Azure Database for MySQL
Deploy a PHP application to an Azure Web App and database to Azure Database for MySQL.
Deploy a Python app to Azure App Service and Azure database for MySQL
Deploy a Python Django, Bottle, or Flask application to an Azure Web App and database to Azure Database for MySQL.
Deploy to a Kubernetes cluster
Deploy, configure, update your containerized applications to a Kubernetes cluster.
IIS website and SQL database deployment
Deployment Group: Deploy ASP.NET or ASP.NET Core web applications to an IIS Website and SQL database on physical or virtual machines (VM).
Others

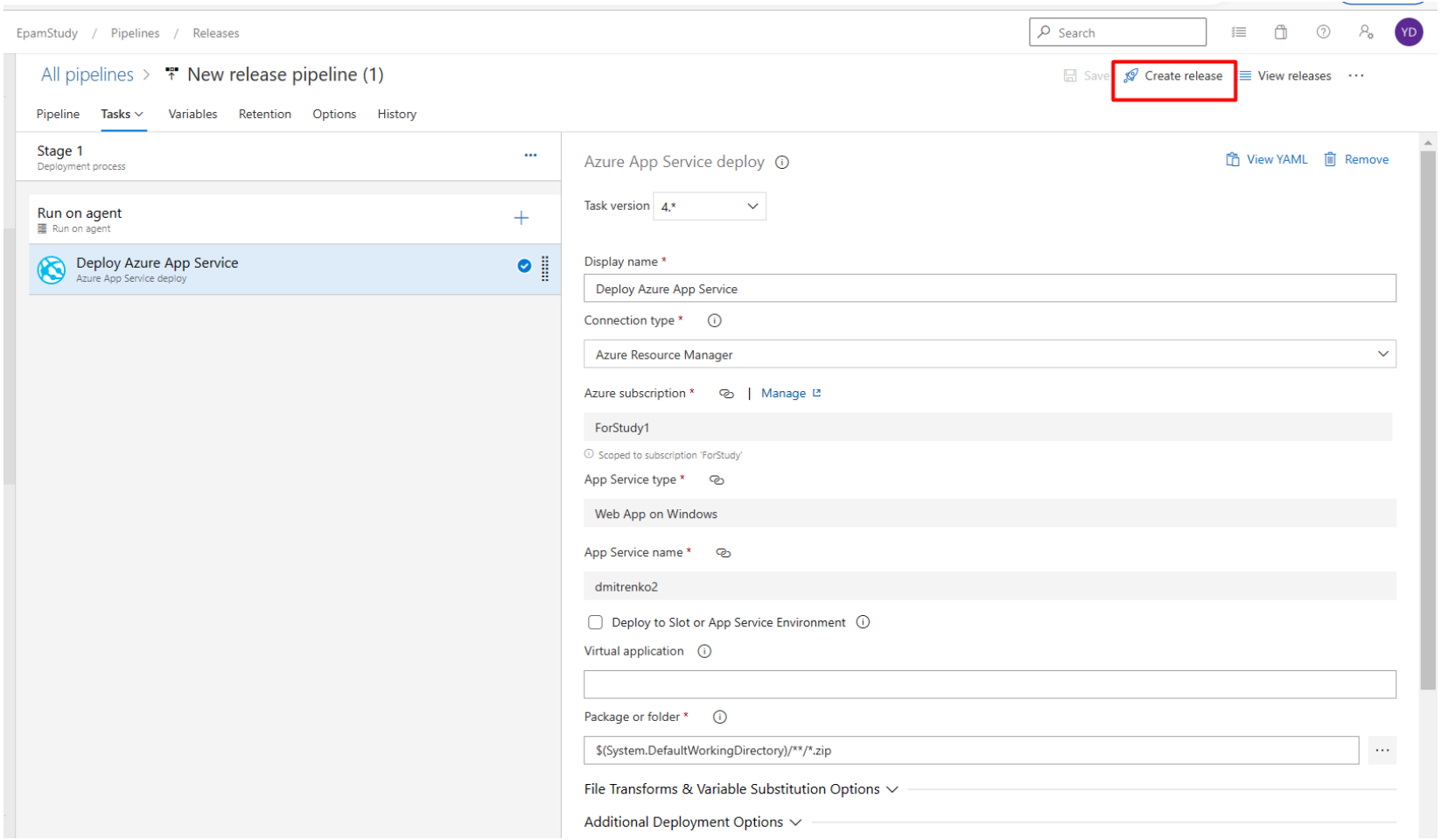

EpamStudy / Pipelines / Releases
All pipelines > New release pipeline (1)
Pipeline
Tasks
Variables
Retention
Options
History
Artifacts | Add
Add an artifact
Schedule not set
Stages | Add
Stage 1
1 job, 1 task
Add an artifact
Source type
Build
Azure Repos ...
GitHub
TFVC
5 more artifact types
Project *
EpamStudy
Source (build pipeline) *
task2-webapp
Default version *
Latest
Source alias *
_task2-webapp
The artifacts published by each version will be available for deployment in release pipelines. The latest successful build of task2-webapp published the following artifacts: webapp1.
Add

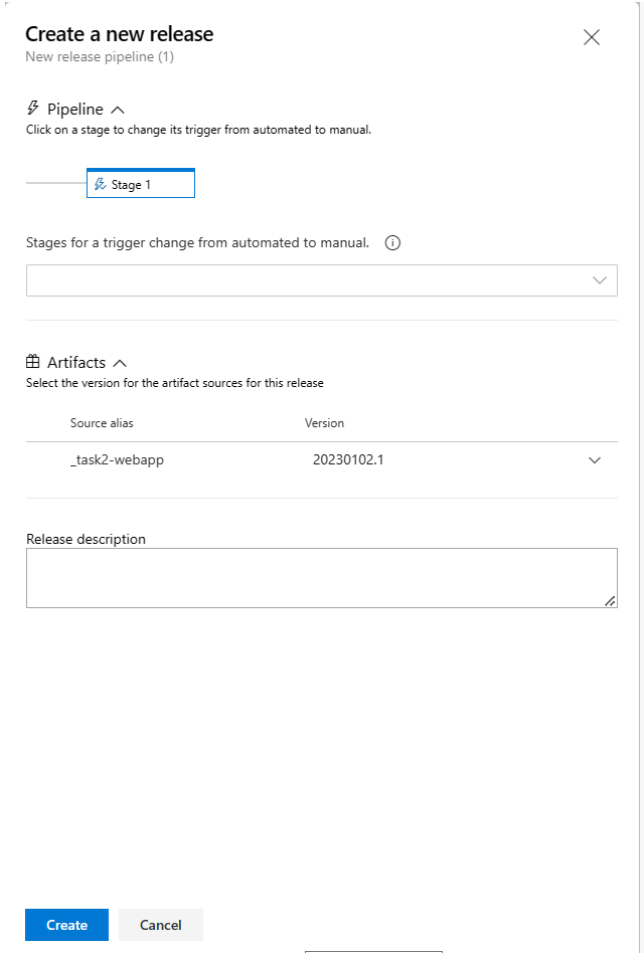

All pipelines
New release pipeline (1)
Pipeline
Tasks
Variables
Retention
Options
History
Artifacts
Add
_task2-webapp
Schedule not set
Stages
Add
Stage 1
1 job, 1 task

Fill all required fields and Save:

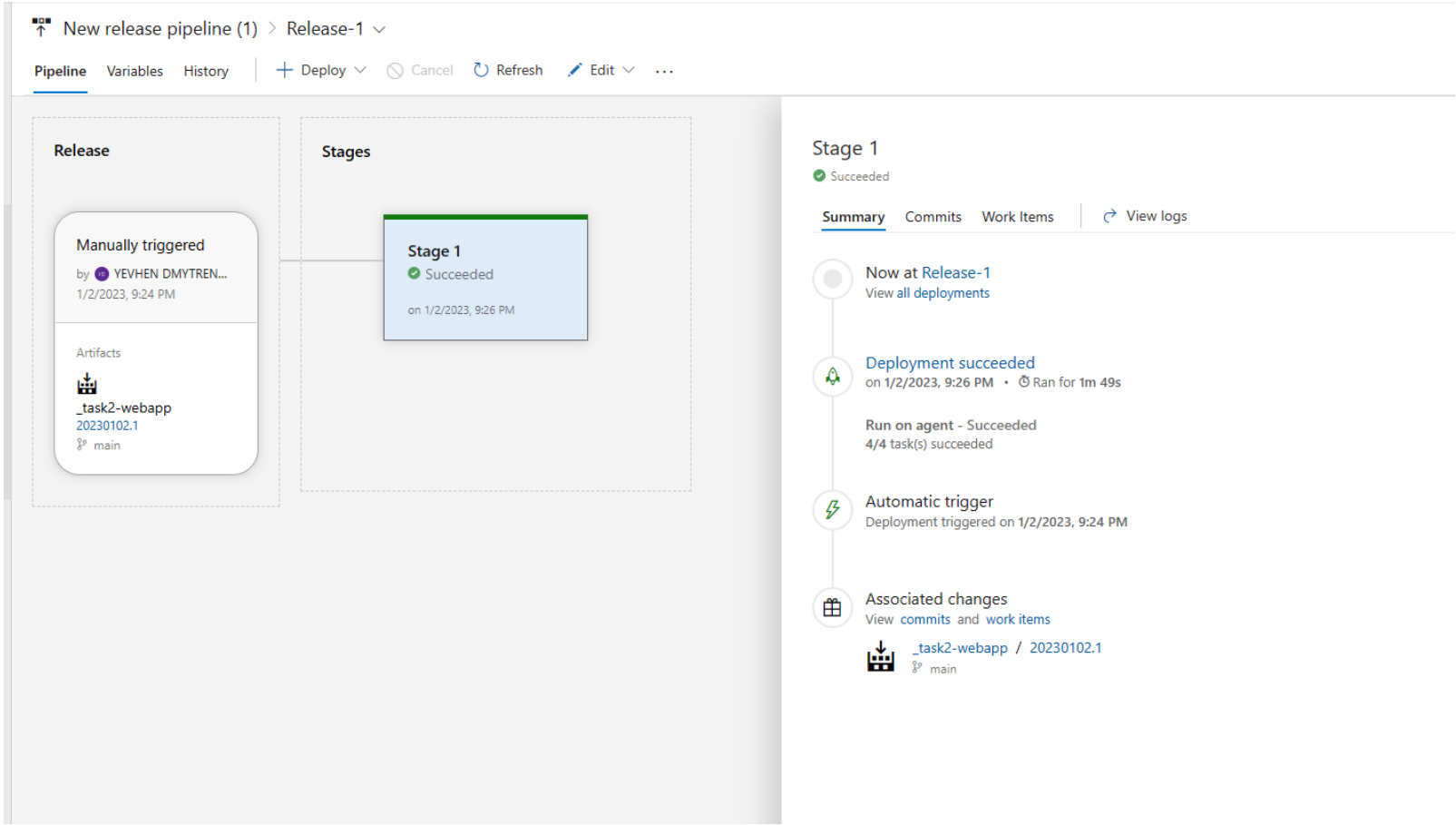


After we can create Release:

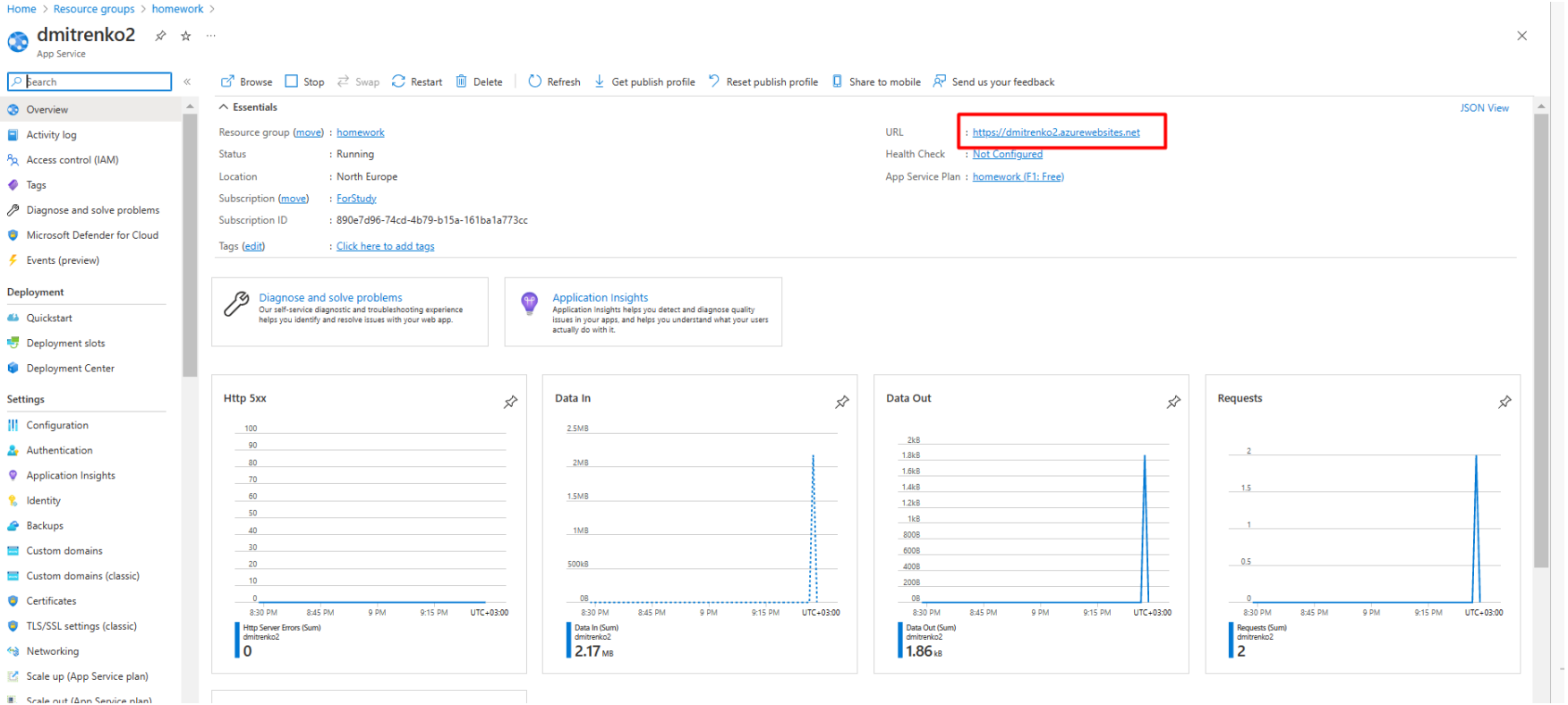


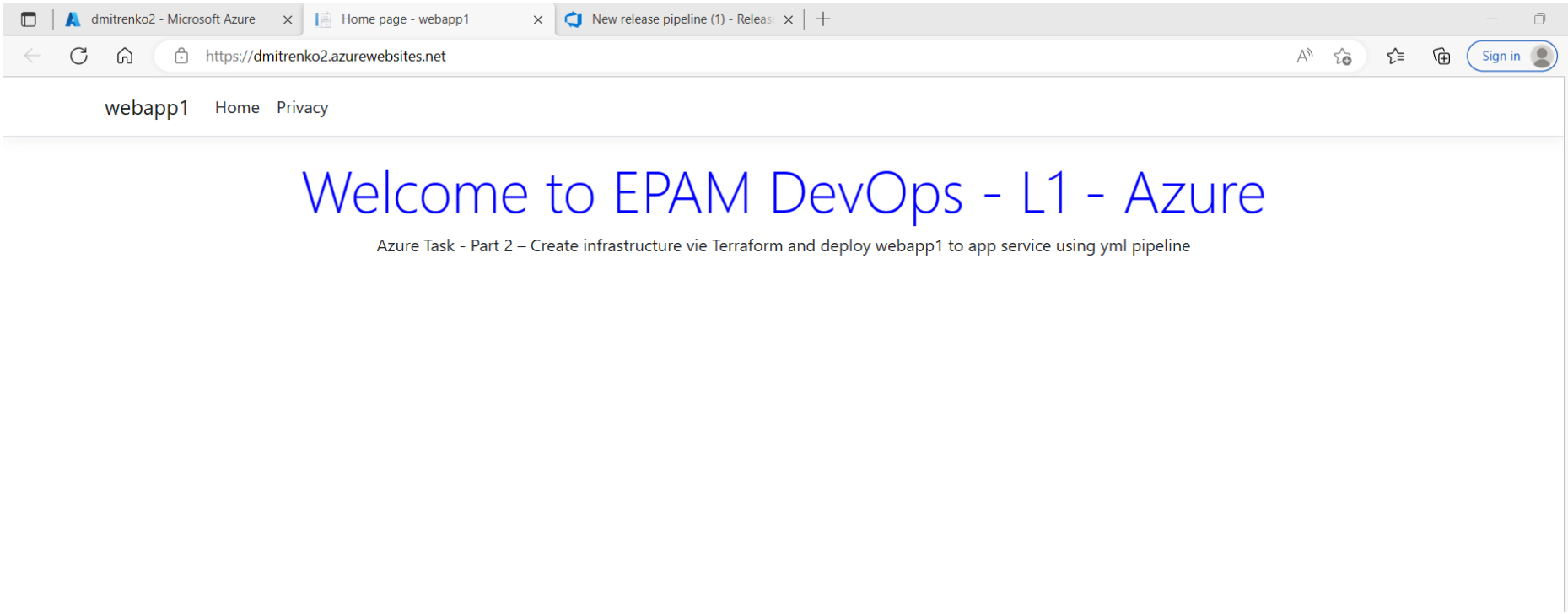

Create a new release
New release pipeline (1)
Pipeline
Click on a stage to change its trigger from automated to manual.
Stage 1
Stages for a trigger change from automated to manual.
Artifacts
Select the version for the artifact sources for this release
Source alias
Version
_task2-webapp
20230102.1
Release description
Create
Cancel

We can go to Release-1 and see the execution process:

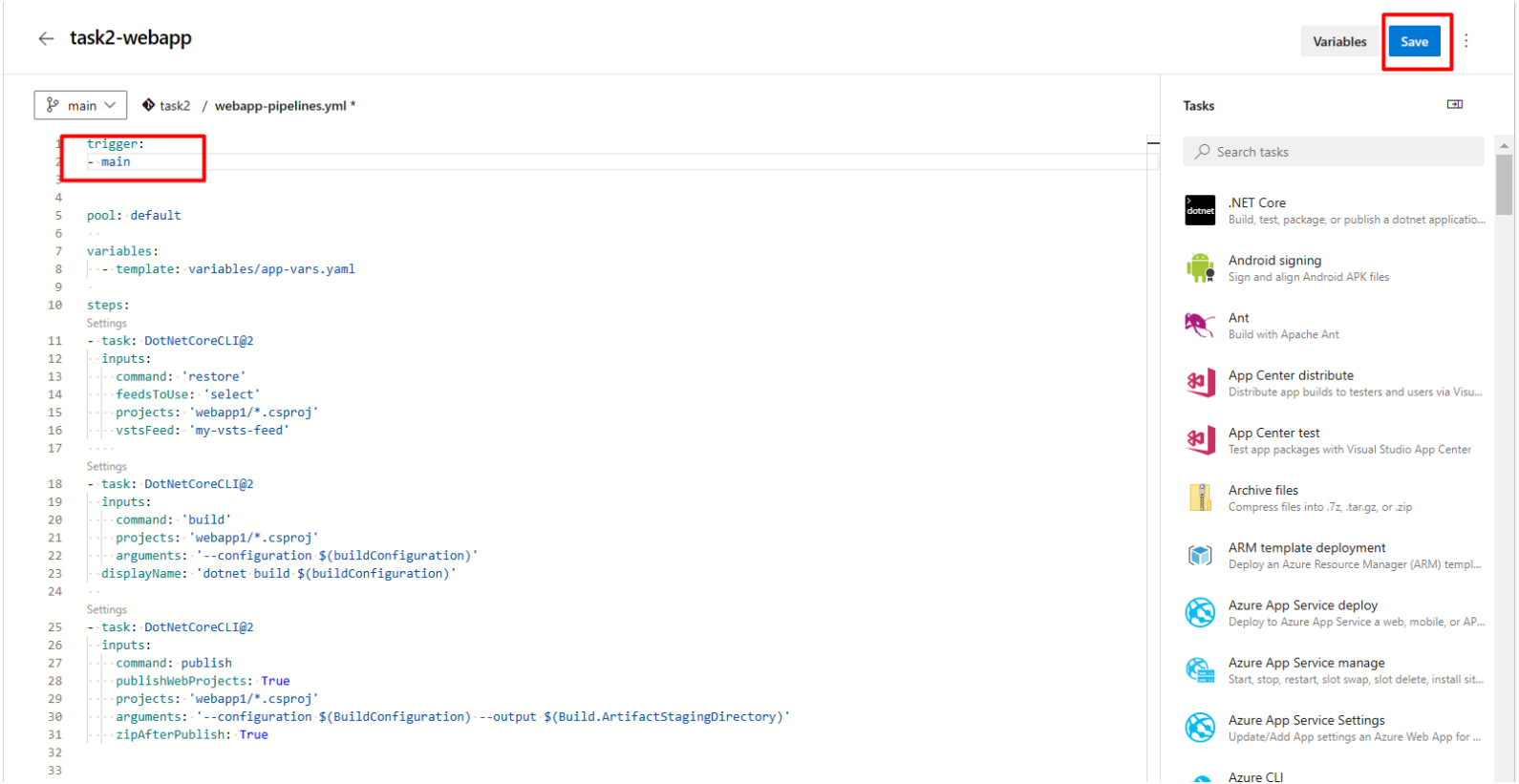


As a result we can go to url of our webapp and see the result:

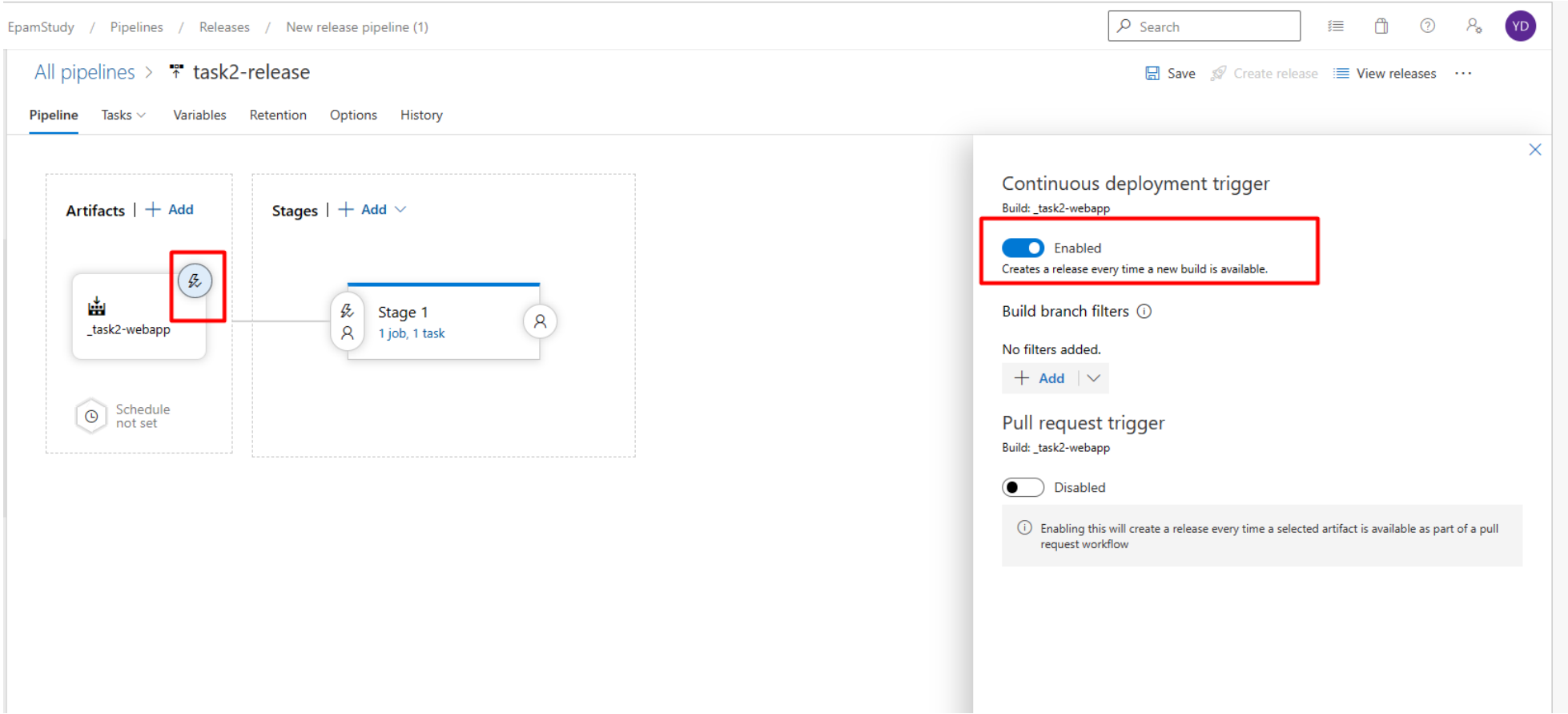



dmitrenko2 - Microsoft Azure
Home page - webapp1
New release pipeline (1) - Releas
https://dmitrenko2.azurewebsites.net
Sign in
webapp1
Home
Privacy
Welcome to EPAM DevOps - L1 - Azure
Azure Task - Part 2 – Create infrastructure vie Terraform and deploy webapp1 to app service using yml pipeline

Now we add trigger to our webbapp-pipeline.yml and change colour of our site headline and webapp-pipeline.yml and release pipeline should run automaticaly:



Also add trigger to Release Pipeline and create new release:



Now change the colour of headline of main page:

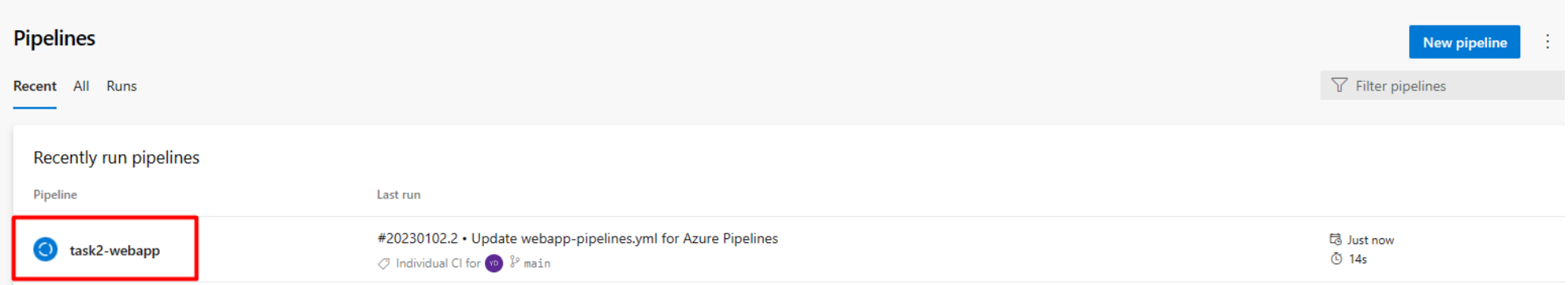
```
D:\Git\task2\webapp1\Pages\Index.cshtml
@page
@model IndexModel
@{
    ViewData["Title"] = "Home page";
}

<div class="text-center">
    <h1 class="display-4"><font color="magenta">Welcome to EPAM DevOps - L1 - Azure</font></h1>
    <p> Azure Task -  Part 2 – Create infrastructure vie Terraform and deploy webapp1 to app service using yml pipeline </p>
</div>
```

git add .

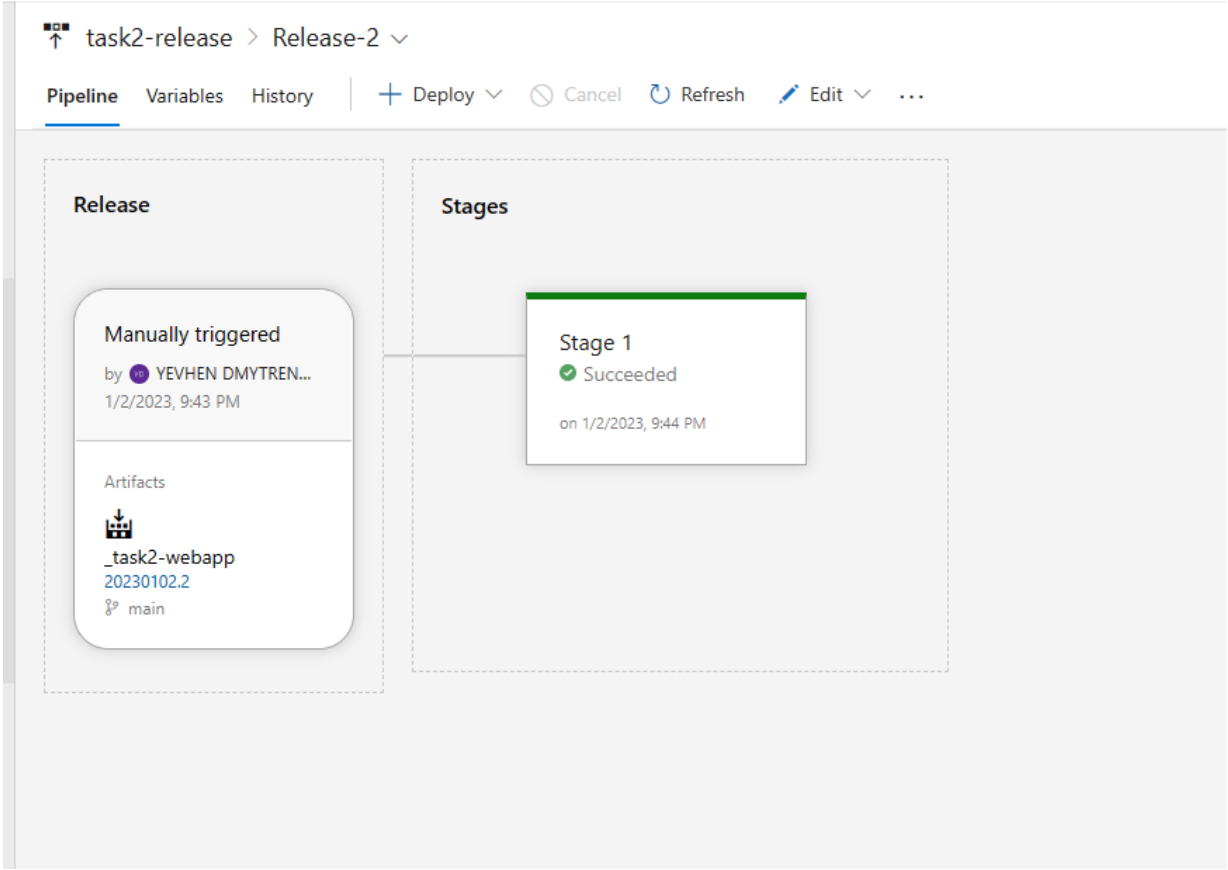
git commit -m „ver2.0“

git push

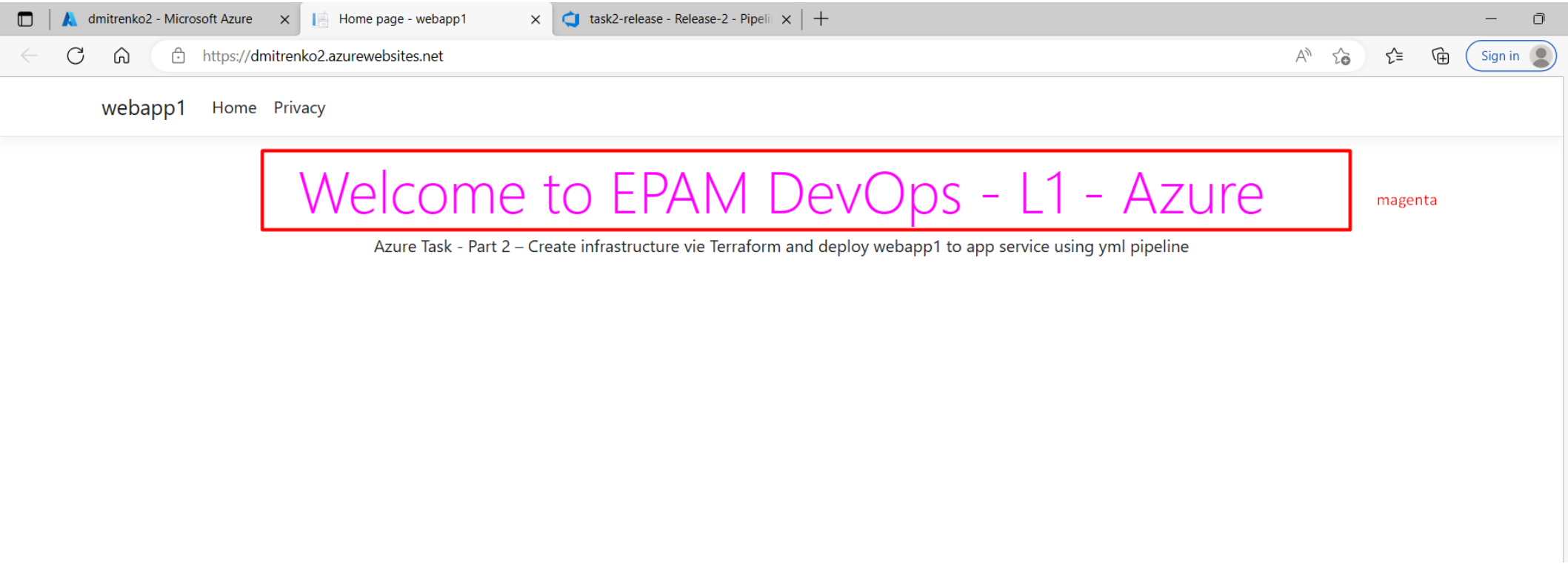
Pipeline started automatically:



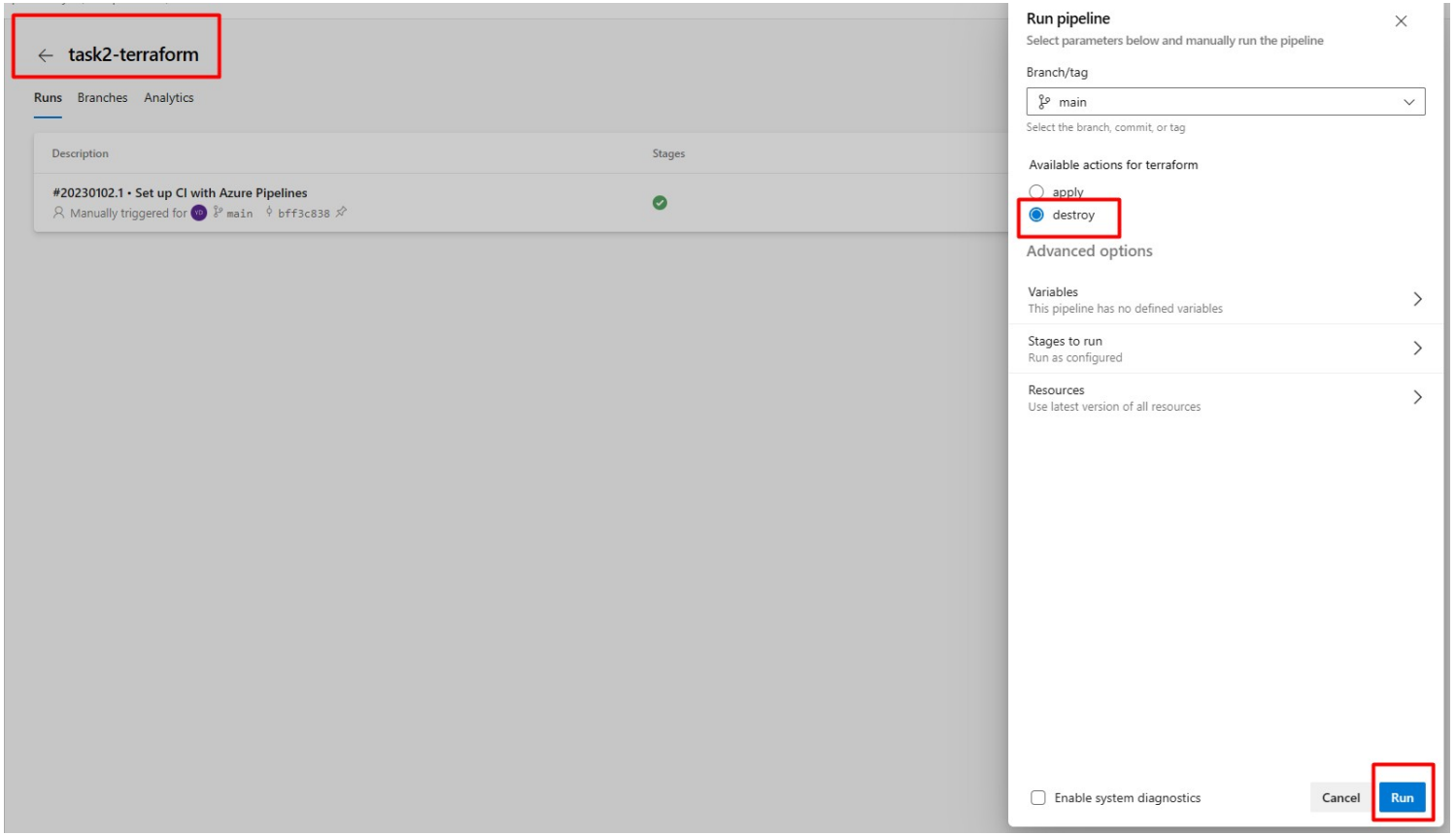
Release Pipeline started automatically too:



And as a result we have new version our webapp with new colour of headline:



Now we can destroy all Azure infrastructure, runnig terraform-pipeline.yml with ***destroy*** parameter (the possibility of choosing the parameter set in our terraform-pipeline.yml):



As a result all our infrastructure was destroyed: