

# Azure Portfolio Projects

## Overview

Each project in this 5 project portfolio is designed to demonstrate my hands-on experience with Azure and cloud technologies. The projects cover core aspects such as compute and identity management, networking and storage, monitoring, backup, and recovery, identity integration, and app service deployment.

### Project 5: Azure App Service Deployment and Scaling

Topics Covered: App Service, Deployment Slots, Autoscaling, Backup, Monitoring

#### Summary

This project focuses on deploying a web application using Azure App Service, utilizing deployment slots for testing, configuring autoscaling based on metrics, and setting up backups.

#### Scenario

A company wants to deploy a web application using Azure App Service, set up deployment slots for testing, enable autoscaling based on demand, and configure backups for disaster recovery.

#### Steps

- Step: Create an App Service
  1. Navigate to App Services > Create.
  2. Select the subscription, resource group, and enter a name for the app.
  3. Choose a Runtime Stack (e.g., .NET, Node.js, Python) and select a pricing tier.
  4. Review and create the App Service.

Microsoft Azure

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

Copilot

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Home > App Services >

Create Web App

App Service Web Apps lets you quickly build, deploy, and scale enterprise-grade web, mobile, and API apps running on any platform. Meet rigorous performance, scalability, security and compliance requirements while using a fully managed platform to perform infrastructure maintenance. [Learn more](#)

Project Details

Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription

Azure for Students

Resource Group

(New) PS

Create new

Instance Details

Name

Project5

.azurewebsites.net

Secure unique default hostname on. [More about this update](#)

Publish

Code

Container

Runtime stack

Python 3.13

Operating System

Linux

Windows

Region

East US

Not finding your App Service Plan? Try a different region or select your App Service Environment.

Pricing plans

App Service plan pricing tier determines the location, features, cost and compute resources associated with your app. [Learn more](#)

Linux Plan (East US)

(New) ASP-PS-99be

Create new

Pricing plan

Basic B1 (100 total ACU, 1.75 GB memory, 1 vCPU)

Explore pricing plans

Zone redundancy

An App Service plan can be deployed as a zone redundant service in the regions that support it. Your initial instance count will be set based on your zone redundancy configuration. To ensure you'll be able to enable zone redundancy at any point in the lifecycle of your app, enable zone redundancy now. You can decrease the instance count after the App Service plan is created. [Learn more](#)

Zone redundancy

Enabled: Your App Service plan and the apps in it will be zone redundant. The minimum App Service plan instance count will be two.

Disabled: Your App Service plan and the apps in it will not be zone redundant. The minimum App Service plan instance count will be one.

Review + create

< Previous

Next : Database >

Microsoft Azure

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Home > App Services >

Create Web App

Basics

Database

Deployment

Networking

Monitor + secure

Tags

Review + create

Summary

Web App

by Microsoft

Basic (B1) sku

Estimated price - 12.41 USD/Month

Basic authentication for this app is currently disabled and may impact deployments. [Click to learn more.](#)

Details

Subscription

35f1b933-8211-4445-a7ed-34469ab9e448

Resource Group

PS

Name

Project5

Secure unique default hostname

Enabled

Publish

Code

Runtime stack

Python 3.13

App Service Plan (New)

Name

ASP-PS-99be

Operating System

Linux

Region

East US

SKU

Basic

Size

Small

ACU

100 total ACU

Memory

1.75 GB memory

Monitor + secure

Application Insights

Not enabled

Deployment

Basic authentication

Disabled

Continuous deployment

Not enabled / Set up after app creation

Create

< Previous

Next >

Download a template for automation

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

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Home >

Microsoft.Web-WebApp-Portal-6780a603-8a19 | Overview

Deployment

Search

Delete Cancel Redeploy Download Refresh

Overview

Inputs

Outputs

Template

✓ Your deployment is complete

Deployment name : Microsoft.Web-WebApp-Portal-6780a603-8a19

Subscription : Azure for Students

Resource group : PS

Start time : 5/10/2025, 11:26:44 AM

Correlation ID : 20f2bd5b-4b96-4ef1-b13c-b94759c5080c

> Deployment details

> Next steps

Go to resource

Cost management

Get notified to stay within your budget and prevent unexpected charges on your bill.

Set up cost alerts >

Microsoft Defender for Cloud

Secure your apps and infrastructure

Go to Microsoft Defender for Cloud >

Free Microsoft tutorials

Start learning today >

Work with an expert

Azure experts are service provider partners who can help manage your assets on Azure and be your first line of support.

Find an Azure expert >

Notifications

More events in the activity log --Dismiss all

✓ Deployment succeeded

Deployment 'Microsoft.Web-WebApp-Portal-6780a603-8a19' to resource group 'PS' was successful.

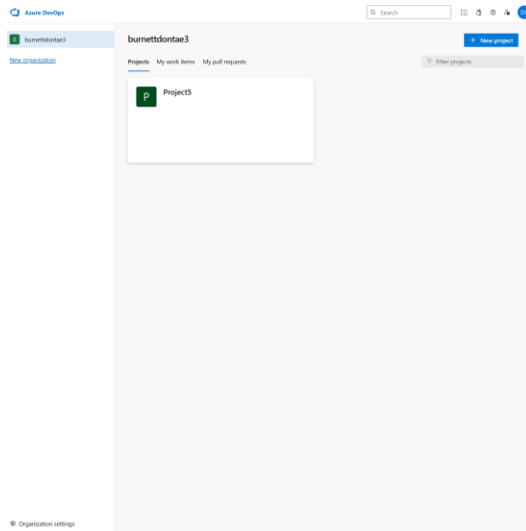
Go to res...

Go to resource ...

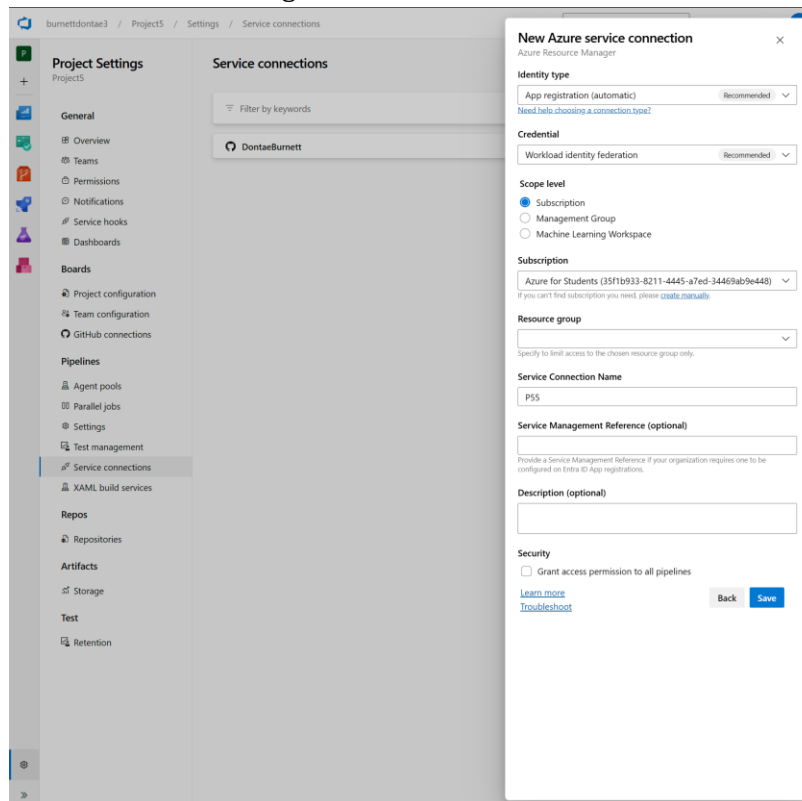
a few seconds ago

https://portal.azure.com/#blade/Microsoft\_Azure\_ActivityLog/ActivityLogBlade/queryInputs/%7B%22user%3A%240me%24%7D

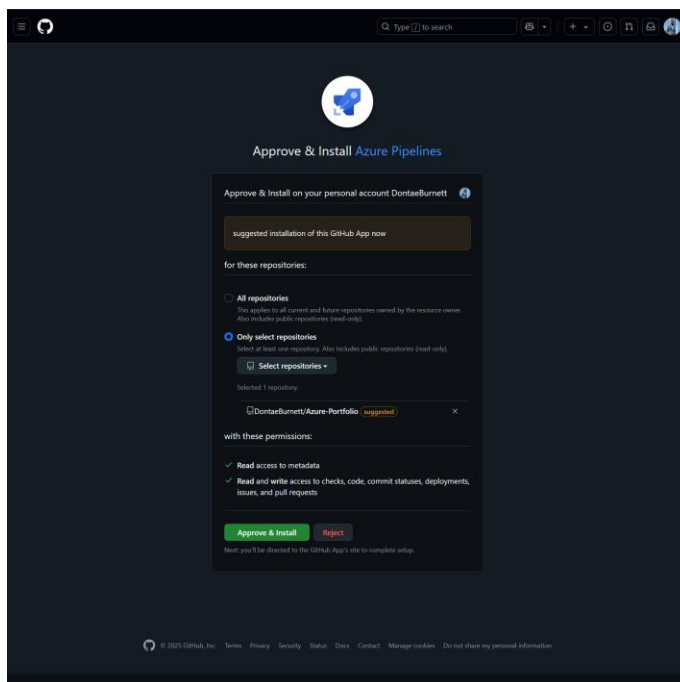
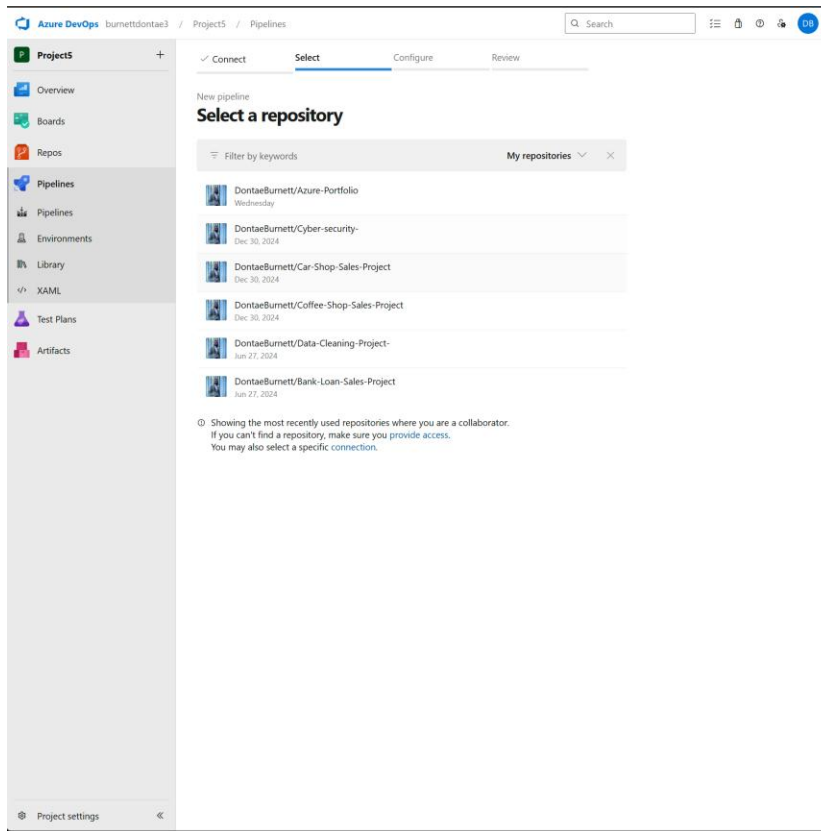
- Step: Deploy the Web Application
  5. Use Azure DevOps or GitHub Actions to set up a CI/CD pipeline.
  6. Deploy the sample web application to the App Service.
  7. Verify the deployment by accessing the application URL.



Under the Project settings you can add Different service Connections the one im using is Azure Resource Manager



Connect your GitHub Account if you want to post it there



Azure DevOps

burnettdontae3 / Project5 / Pipelines

Q Search

Project5

+

Overview

Boards

Repos

Pipelines

Pipelines

Environments

Library

XAML

Test Plans

Artifacts

Project settings

«

You selected a public repository, but this is not a public project. Go to [project settings](#) to change the visibility of the project. [Learn more](#)

✓ Connect

✓ Select

Configure

Review

New pipeline

Configure your pipeline

Starter pipeline

Start with a minimal pipeline that you can customize to build and deploy your code.

Existing Azure Pipelines YAML file

Select an Azure Pipelines YAML file in any branch of the repository.

Show more

Project5

Overview

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Test Plans

Artifacts

Project settings

<<

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Search

DB

You selected a public repository, but this is not a public project. Go to [project settings](#) to change the visibility of the project. [Learn more](#)

✓ Connect

✓ Select

✓ Configure

Review

New pipeline

Review your pipeline YAML

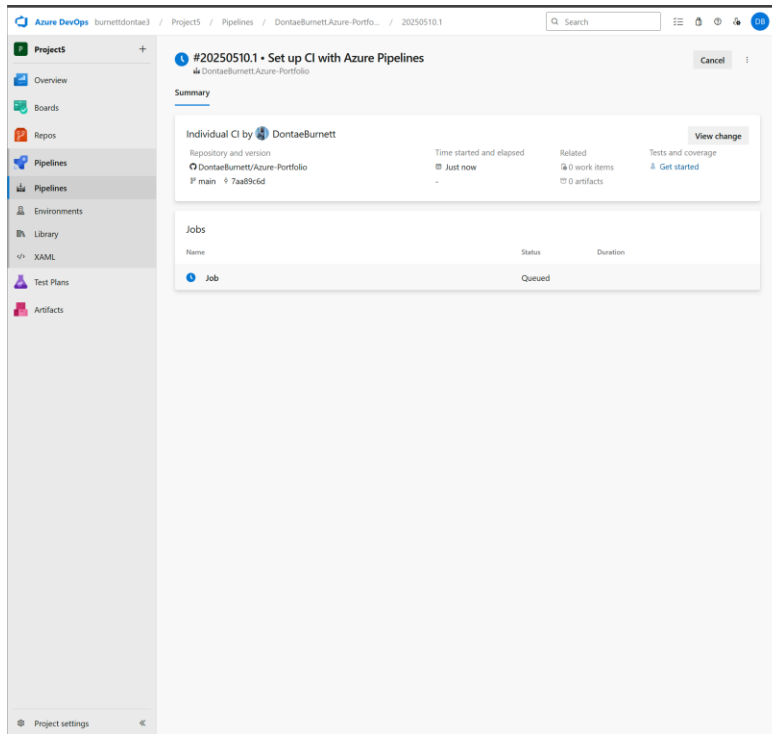
Variables

Save and run

DontaeBurnett/Azure-Portfolio / azure-pipelines.yml \* ⌵

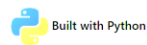
Show assistant

```
1 # Starter pipeline
2 # Start with a minimal pipeline that you can customize to build and deploy your code.
3 # Add steps that build, run tests, deploy, and more:
4 # https://aka.ms/yaml
5
6 trigger:
7 - main # or the branch you're using
8
9 pool:
10   vmImage: 'ubuntu-latest'
11
12 steps:
13   Settings
14   - task: NodeTool@0
15     inputs:
16       versionSpec: '18.x'
17       displayName: 'Install Node.js'
18
19   - script: |
20     npm install
21     npm run build
22     displayName: 'Install dependencies and build project'
23
24   Settings
25   - task: ArchiveFiles@2
26     inputs:
27       rootFolderOrFile: '$(System.DefaultWorkingDirectory)'
28       includeRootFolder: false
29       archiveType: 'zip'
30       archiveFile: '$(Build.ArtifactStagingDirectory)/build.zip'
31       replaceExistingArchive: true
32       displayName: 'Archive build output'
33
34   Settings
35   - task: AzureWebApp@1
36     inputs:
37       azureSubscription: 'P55'
38       appName: 'Project5'
39       package: '$(Build.ArtifactStagingDirectory)/build.zip'
40       displayName: 'Deploy to Azure Web App'
```



## Your web app is running and waiting for your content

Your web app is live, but we don't have your content yet. If you've already deployed, it could take up to 5 minutes for your content to show up, so come back soon.



Built with Python

Haven't deployed yet?  
Use the deployment center to publish code or set up continuous deployment.

[Deployment center](#)

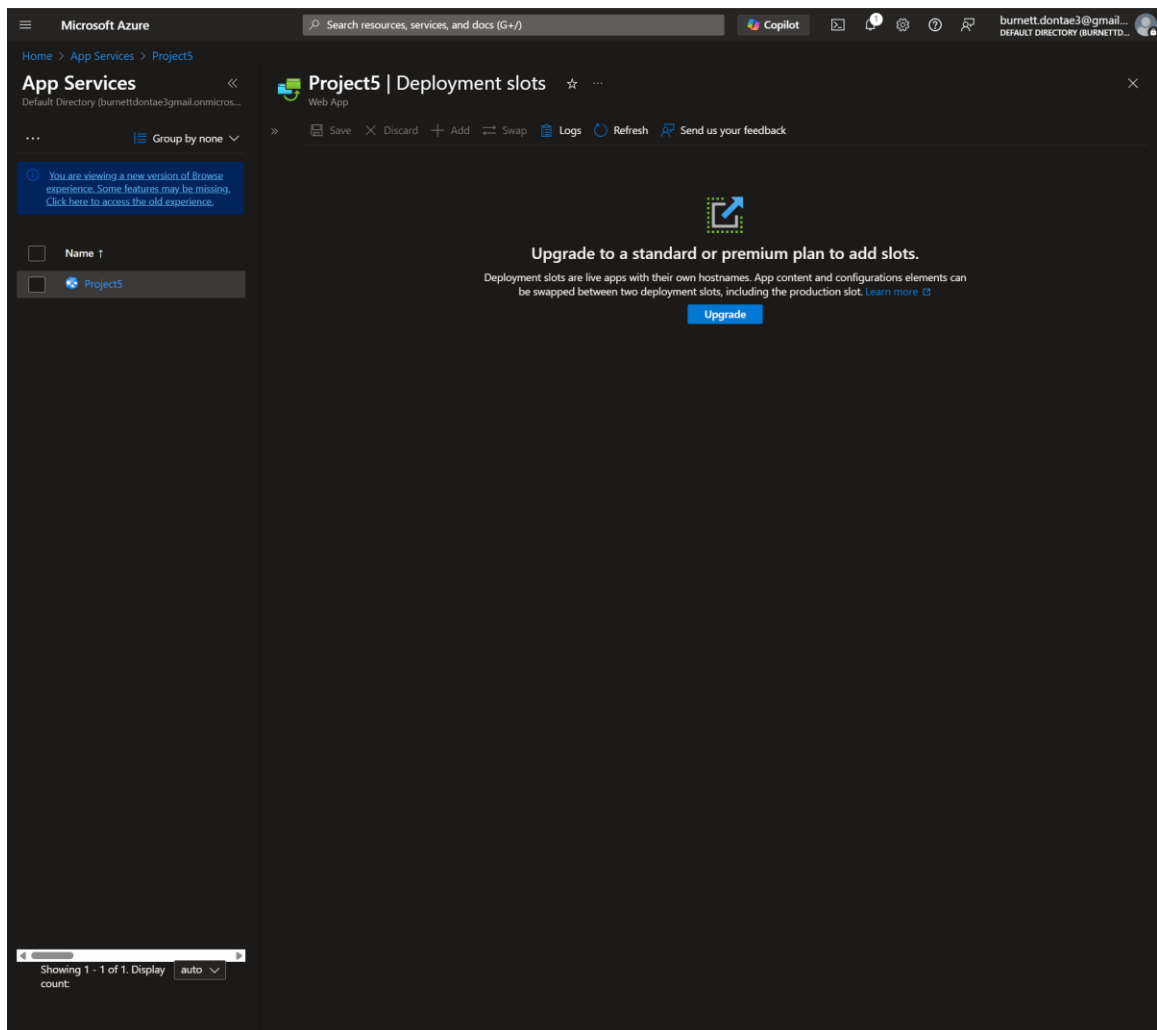
Starting a new web site?  
Follow our 'Quickstart' guide to get a web app ready quickly.

[Quickstart](#)



- Step: Set Up Deployment Slots
  8. Navigate to the App Service > Deployment Slots > Add Slot.
  9. Create a slot named 'Staging'.
  10. Deploy a new version of the application to the Staging slot.
  11. Swap slots to promote the staging version to production after testing.

The Free trial does not allow you to have Additional deployment slots but if your not on a free trial then you can Alternate between a staging slot to a production slot when your done testing



- Step: Configure Autoscaling

12. Navigate to the App Service Plan > Scale Out (App Service Plan).

13. Set up autoscaling based on metrics such as CPU usage or request count.

14. Define rules (e.g., scale out by 1 instance if CPU > 70% for 10 minutes).

The screenshot shows the Microsoft Azure portal interface. The main heading is "ASP-P5-99be | Scale out (App Service plan)". The left sidebar contains a navigation menu with options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Events (preview), Resource visualizer, Settings, Apps, File system storage, Networking, Scale up (App Service plan), Scale out (App Service plan) (selected), Properties, Locks, Monitoring, Alerts, Metrics, Logs, Diagnostic settings, Automation, Tasks, Export template, Help, Resource health, and Support + Troubleshooting.

The main content area is divided into two sections. The top section, "Pricing plan", shows the current plan as "Free F1 (Change)". Below this, a table lists the pricing details:

Price (instance)	Free
Memory (GB)	1
Maximum scale (instance)	0
Current instance	1

The bottom section, "Scaling", provides information about scaling methods. It states: "App service provides multiple features that help applications perform their best when scaling demand changes. You can choose to scale your resource manually to a specific instance count, or via a custom Autoscale rule based policy that scales based on metrics thresholds, or schedule instance count which scales during designated time windows. You can also use Automatic Scaling features which enables platform managed scale in and scale out for your apps based on incoming HTTP traffic. [Learn more about Azure Autoscale, Automatic Scaling or view the how-to video.](#)

Under "Scale out method", there are three radio button options:

- ☐ Manual: Maintain a constant instance count for your application. Free and Shared plans are limited to a single instance. Upgrade to Basic or higher to enable scale out scenarios. [See recommended pricing plan](#)
- ☐ Automatic: Platform managed scale out and in based on traffic. Automatic scaling requires a Premium v2 or Premium v3 App Service Plan. Upgrade your App Service Plan to enable this feature. [See recommended pricing plan](#)
- ☐ Rules Based: User defined rules to scale on a schedule or based on any app metric. Rules based autoscale requires a Standard or better App Service Plan. Upgrade your App Service Plan to enable this feature. [See recommended pricing plan](#)

At the bottom of the page, there are "Save" and "Discard" buttons, and a footer note: "Add or remove features by pressing Ctrl + Shift + F".

Since I am on the Free version using my student account it does not allow me to create a scale out plan as there is not allow scale out instances

But if you do then you would just need to create a scale out for CPU usage and define the rule to limit CPU power

Microsoft Azure

Search resources, services, and docs (G+)

Home > App Service plans > ASP-P5-99be

ASP-P5-99be | Scale out (App Service plan)

Linux plan

Search Refresh Send us your feedback

Overview

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Access control (IAM)

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Diagnose and solve problems

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Scale out (App Service plan)

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Automation

Tasks

Export template

Help

Resource health

Support + Troubleshooting

Price (instance)

Memory (GB)

Maximum scale (instance)

Current instance

Scaling

App service provides multiple features that to scale your resource manually to a specific metric(s) threshold, or schedule instance Scaling features which enables platform m

Learn more about Azure Autoscale, Auto

Scale out method

Recommended Pricing Plan

For more capacity and flexibility, explore pricing plans.

	Free F1 (Current plan)	Basic B1 0.017 USD/hour (12.41 USD/month)
SLA	N/A	99.95%
ACU/vCPU	60 minutes/day compute	100
vCPU	N/A	1
Memory (GB)	1	1.75
Remote Storage (GB)	1	10
Scale (instance)	N/A	3
Custom domain		✓
Auto scale		Manual
Staging slots	N/A	N/A
Daily backups	N/A	12
Zone Redundant		
Isolated network		
Single tenant system		
Private app access		

Showing 1 - 1 of 1. Display count. auto

Save Discard Select Cancel

Add or remove features by pressing Ctrl+Shift+F

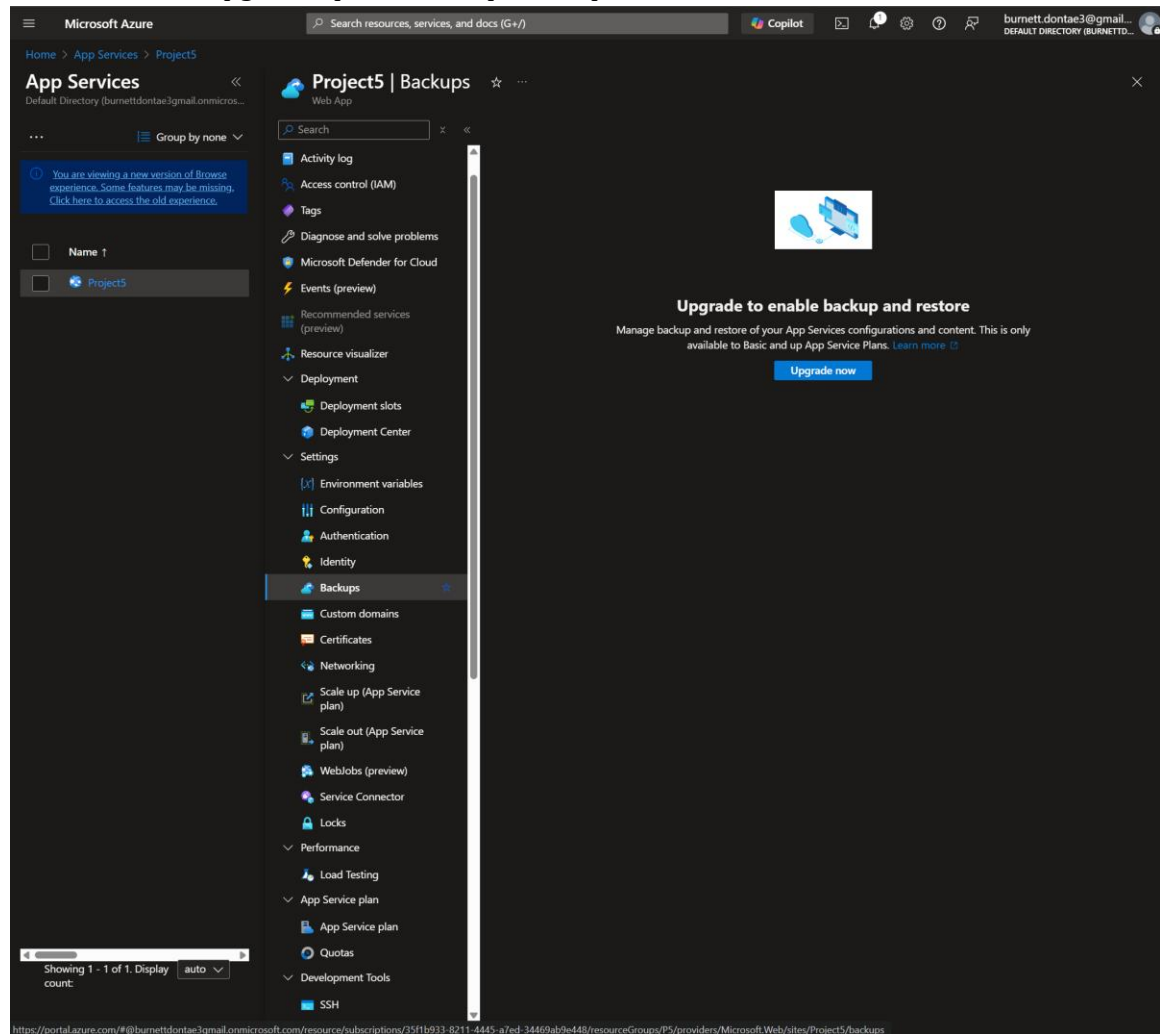
- Step: Backup and Restore

15. Navigate to the App Service > Backups > Configure.

16. Set up a backup schedule to back up the app and its associated database.

17. Perform a manual backup and verify it by restoring it to a new App Service.

You will need a upgraded plan to set up back up



- Step: Monitor and Configure Alerts

18. Navigate to App Service > Monitoring > Metrics.

19. Set up metrics to monitor app performance (e.g., CPU usage, response time).

The screenshot displays the 'Create an alert rule' interface in the Microsoft Azure portal. The page is divided into several sections for configuring an alert rule.

**Scope:** The 'Condition' tab is selected. The signal name is set to 'CPU Time'.

**Alert logic:** A message states: 'We have set the condition configuration automatically based on popular settings for this metric. Please review and make changes as needed.'

**Threshold type:** The 'Dynamic' radio button is selected.

**Aggregation type:** The 'Total' dropdown is selected.

**Value is:** The 'Greater or Less than' dropdown is selected.

**Threshold Sensitivity:** The 'Medium' dropdown is selected.

**Split by dimensions:** A message states: 'Use dimensions to monitor specific time series and provide context to the fired alert. [About monitoring multiple time series](#)'.

**When to evaluate:** The 'Check every' dropdown is set to '1 minute' and the 'Lookback period' dropdown is set to '5 minutes'.

**Advanced options:** A section with a '+ Add condition' button.

**Preview:** A section titled 'Preview' showing a graph of CPU Time (Sum) for project5. The graph shows a peak in CPU time around 12 PM. The preview time range is 'Over the last 6 hours' and the time series is 'Aggregate'. The cost is listed as '\$0.20 USD/month'.

**Buttons:** At the bottom, there are buttons for 'Review + create', 'Previous', and 'Next: Actions >'.

Microsoft Azure

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

Copilot

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Home > Project5 | Alerts >

Create an alert rule

Scope

Condition

Actions

Details

Tags

Review + create

Product details

Metric alert rule

1 Condition

Terms of use | Privacy statement

Total pricing

0.20 USD/month

Pricing

Scope

Resource

Azure for Students > PS > Project5

Condition

Signal name

CpuTime

Operator

Greater or Less than

Aggregation type

Total

Threshold Sensitivity

Medium

Number of violations

4

Within

4

Lookback period

5 minutes

Check every

1 minute

Details

Project details

Subscription

Azure for Students

Resource group

PS

Region

global

Alert rule details

Alert rule name

PS000high

Alert rule description

Severity

3 - Informational

Enable upon creation

☒

Automatically resolve alerts

☒

Create

Previous

Microsoft Azure

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

Copilot

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DEFAULT DIRECTORY (BURNETT3...)

Home > Project5

Project5 | Alerts

Overview

Activity log

Access control (IAM)

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Diagnose and solve problems

Microsoft Defender for Cloud

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Scale out (App Service plan)

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Action groups

More (6)

Search

Add filter

Total alerts

Critical

Error

Warning

Informational

Verbose

No grouping

Name

Severity

Affected resource

Alert condition

Use

No alerts found

Try changing your search or choose a different scope level if you don't see what you're looking for.

Clear filters

Notifications

More events in the activity log

Dismiss all

Alert rule created

Alert rule PS000high successfully created. It might take a few minutes for changes to be shown.

a few seconds ago

Add or remove features by pressing Ctrl+Shift+F10