

Step-by-Step Solution for Azure Deployment

1. Set Up Azure Infrastructure

1.1. Create Resource Groups

- Create two resource groups for the two regions:
 - **Central US:** ResourceGroupCentralUS
 - **West US:** ResourceGroupWestUS

Using Azure CLI

az group create --name ResourceGroupCentralUS --location centralus

```
new [ ~ ]$ az group create --name ResourceGroupCentralUS --location centralus
{
  "id": "/subscriptions/9b23d2c1-3c85-4730-9eef-8d7211489a95/resourceGroups/ResourceGroupCentralUS",
  "location": "centralus",
  "managedBy": null,
  "name": "ResourceGroupCentralUS",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
```

az group create --name ResourceGroupWestUS --location westus

```
new [ ~ ]$ az group create --name ResourceGroupWestUS --location westus
{
  "id": "/subscriptions/9b23d2c1-3c85-4730-9eef-8d7211489a95/resourceGroups/ResourceGroupWestUS",
  "location": "westus",
  "managedBy": null,
  "name": "ResourceGroupWestUS",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
```

1.2. Create Virtual Networks

- Create two virtual networks, one for each region:

**az network vnet create --resource-group ResourceGroupCentralUS --name VNet1 --
subnet-name Subnet1**

**az network vnet create --resource-group ResourceGroupWestUS --name VNet2 --
subnet-name Subnet2**

Virtual networks

Default Directory (Newstudent199578outlook.onmicrosoft.com)

+ Create Manage view Refresh Export to CSV Open query Assign tags

Filter for any field... Subscription equals all Resource group equals all Location equals all Add filter

Showing 1 to 2 of 2 records.

Name	Resource group	Location	Subscription
VNet1	ResourceGroupCentralUS	Central US	Free Trial
VNet2	ResourceGroupWestUS	West US	Free Trial

1.3. Create Virtual Machines

- Deploy VM1 in Central US and VM2 in West US.

az vm create --resource-group ResourceGroupCentralUS --name VM1 --image Ubuntu2204 --vnet-name VNet1 --subnet Subnet1 --admin-username azureuser --generate-ssh-keys

az vm create --resource-group ResourceGroupWestUS --name VM2 --image Ubuntu2204 --vnet-name VNet2 --subnet Subnet2 --admin-username azureuser --generate-ssh-keys

Virtual machines

Default Directory (Newstudent199578outlook.onmicrosoft.com)

+ Create Switch to classic Reservations Manage view Refresh Export to CSV Open query Assign tags Start Restart Stop Delete Services Maintenance

Filter for any field... Subscription equals all Type equals all Resource group equals all Location equals all Add filter

Showing 1 to 2 of 2 records.

Name	Subscription	Resource group	Location	Status	Operating system	Size	Public IP address	Disks
VM1	Free Trial	ResourceGroupCentralUS	Central US	Running	Linux	Standard_DS1_v2	40.83.14.75	1
VM2	Free Trial	ResourceGroupWestUS	West US	Running	Linux	Standard_DS1_v2	40.78.96.71	1

1.4. Create V-net Peering

Virtual networks > VNet2

Virtual networks

Default Directory (Newstudent199578outlook.onmicrosoft.com)

+ Create Manage view

Filter for any field... Name

VNet1 VNet2

VNet2 | Peerings

Virtual network

+ Add Refresh Export to CSV Delete Sync

Virtual network peering enables you to seamlessly connect two or more virtual networks in Azure. The virtual networks appear as one for connectivity purposes. [Learn more](#)

Filter by name...

Name	Peering sync status	Peering status	Remote VNet	Virtual network
VNet1ToVNet2	Fully Synchronized	Connected	VNet1	Disabled

2. Configure Storage Account

2.1. Create a Storage Account

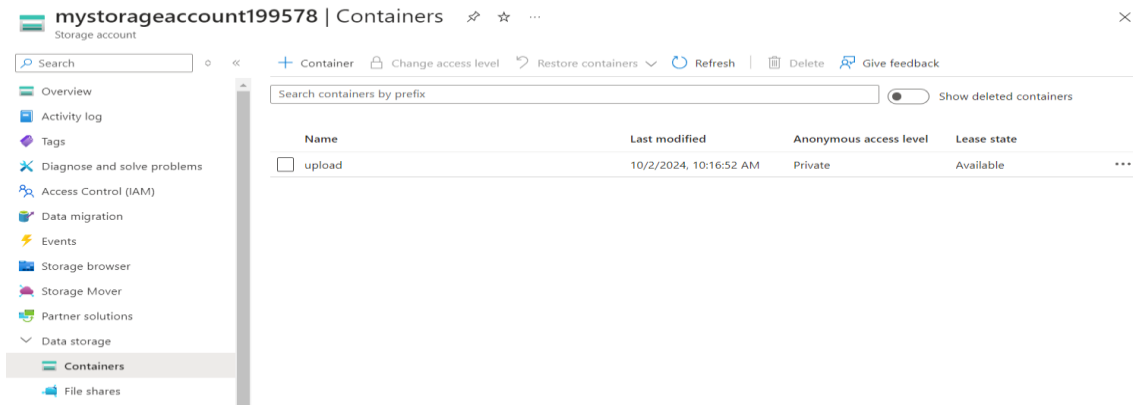
- Create a storage account in Central US for hosting the error.html file.

az storage account create --name mystorageaccount199578 --resource-group ResourceGroupCentralUS --location centralus --sku Standard_LRS

2.2. Create a Blob Container

- Create a container named upload.

az storage container create --name upload --account-name mystorageaccount199578



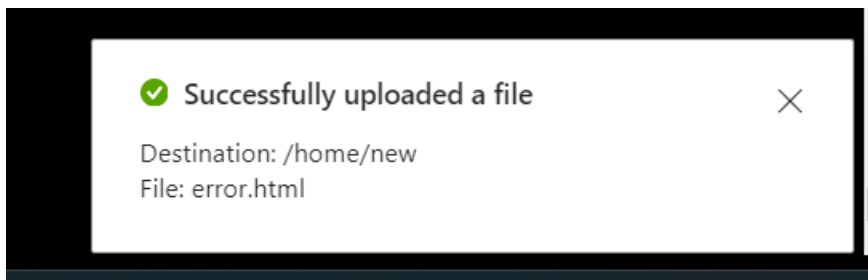
2.3. Enable Static Website Hosting

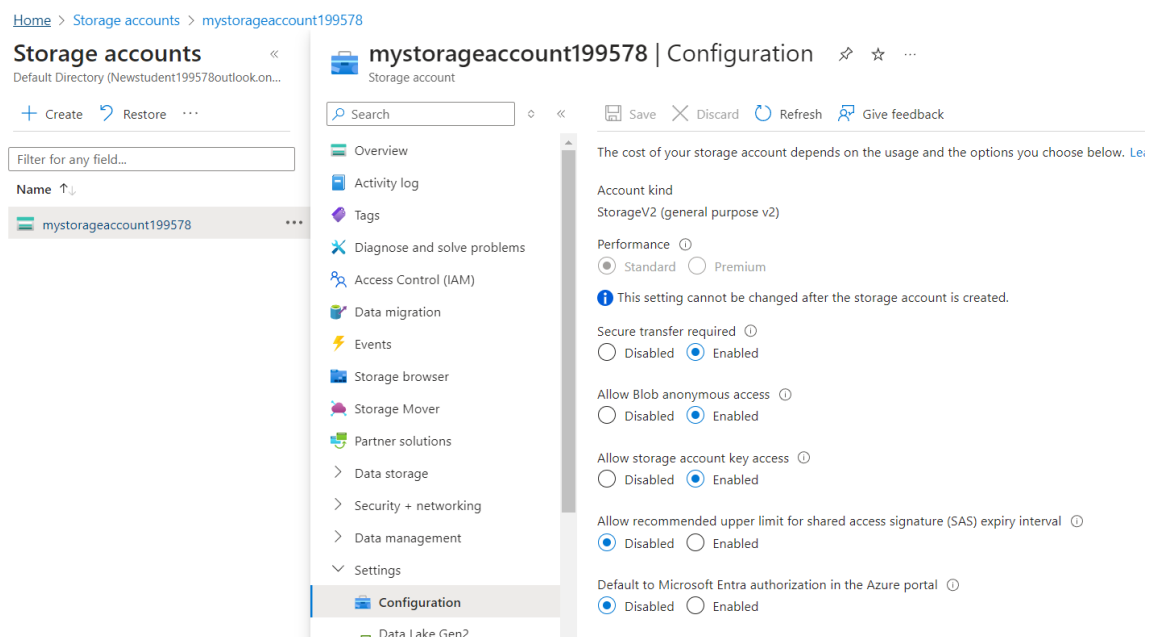
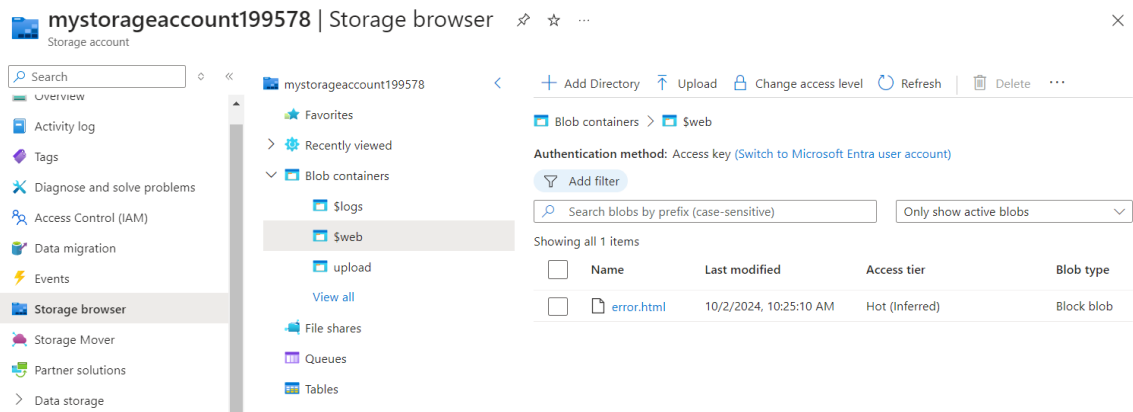
- Enable static website hosting and upload the error.html.

az storage blob service-properties update --account-name mystorageaccount199578 --static-website true

az storage blob service-properties update --account-name mystorageaccount199578 --static-website --index-document index.html --404-document error.html

**az storage blob upload --account-name mystorageaccount199578 --container-name **
\\$web --name error.html --file /home/new/error.html





3. SSH into Each VM, Clone the Repository and Run Deployment Scripts

On VM1

```
git clone https://github.com/azcloudberg/azproject.git
```

```
cd azproject
```

```
./vm1.sh
```

```
root@VM1:/home/azureuser# git clone https://github.com/azcloudberg/azproject.git
cd azproject
Cloning into 'azproject'...
remote: Enumerating objects: 229, done.
remote: Counting objects: 100% (26/26), done.
remote: Compressing objects: 100% (12/12), done.
remote: Total 229 (delta 21), reused 14 (delta 14), pack-reused 203 (from 1)
Receiving objects: 100% (229/229), 52.16 KiB | 1.58 MiB/s, done.
Resolving deltas: 100% (108/108), done.
root@VM1:/home/azureuser/azproject# ./vm1.sh
Rules updated
Rules updated (v6)
Hit:1 http://azure.archive.ubuntu.com/ubuntu jammy InRelease
```

On VM2

```
git clone https://github.com/azcloudberg/azproject.git
```

```
cd azproject
```

```
./vm2.sh
```

```
root@VM2:/home/azureuser# git clone https://github.com/azcloudberg/azproject.git
cd azproject
./vm2.sh
Cloning into 'azproject'...
remote: Enumerating objects: 229, done.
```

5. Configure the Application

5.1. Edit Configuration Files

- On VM1, open the config.py file and update the storage account details.

```
nano config.py
```

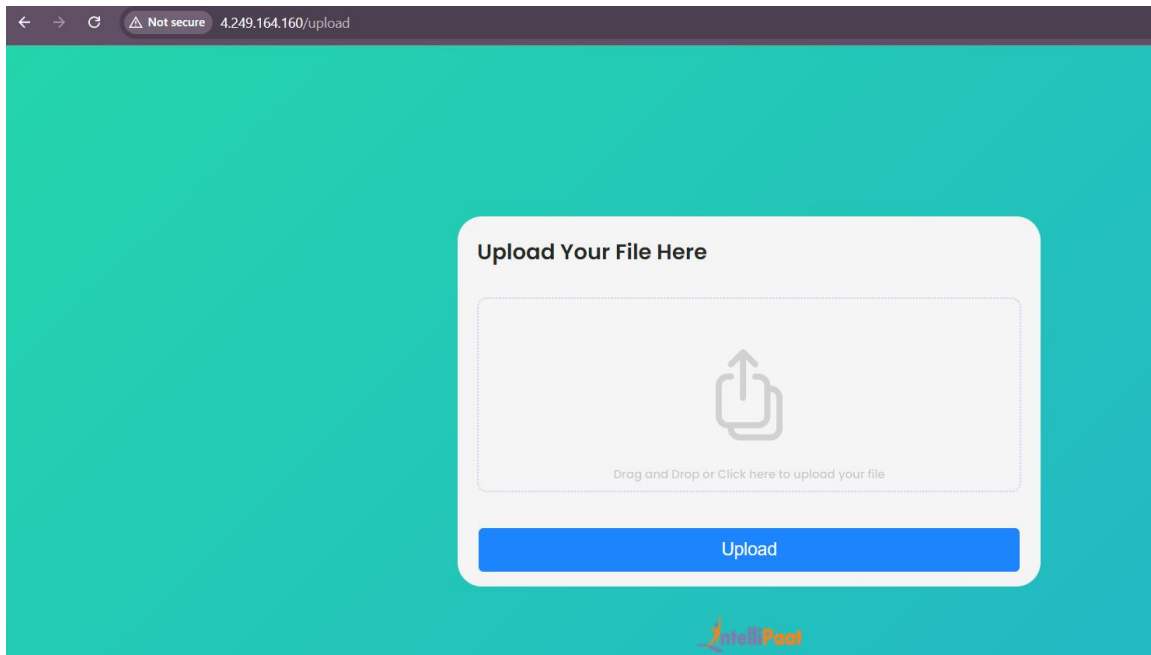
Update the storage account information

5.2. Run the Application

On VM1

```
sudo python3 app.py
```

```
root@VM1:/home/azureuser/azproject# sudo python3 app.py
* Serving Flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production dep
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:80
* Running on http://10.0.0.4:80
Press CTRL+C to quit
```



6. Configure Application Gateway

6.1. Create Application Gateways

- Create Application Gateways in both regions and set up the routing rules.

Application Gateway for Central US

```
az network application-gateway create --name myAppGateway2 --location westus --resource-group ResourceGroupWestUS --capacity 2 --sku Standard_v2 --public-ip-address MyAppGateway2PublicIp --vnet-name VNet1 --subnet default2 --servers "<private ip of vm>" --priority 100
```

Application Gateway for West US

```
az network application-gateway create --name myAppGateway2 --location westus --resource-group ResourceGroupWestUS --capacity 2 --sku Standard_v2 --public-ip-address MyAppGateway2PublicIp --vnet-name VNet2 --subnet default --servers ""<private ip of vm>" --priority 100
```

Load balancing | Application Gateway

Search Create Manage view Refresh Export to CSV Open query Assign tags

Overview

Load Balancing Services

Application Gateway

Front Door and CDN profiles

Load Balancer

Traffic Manager

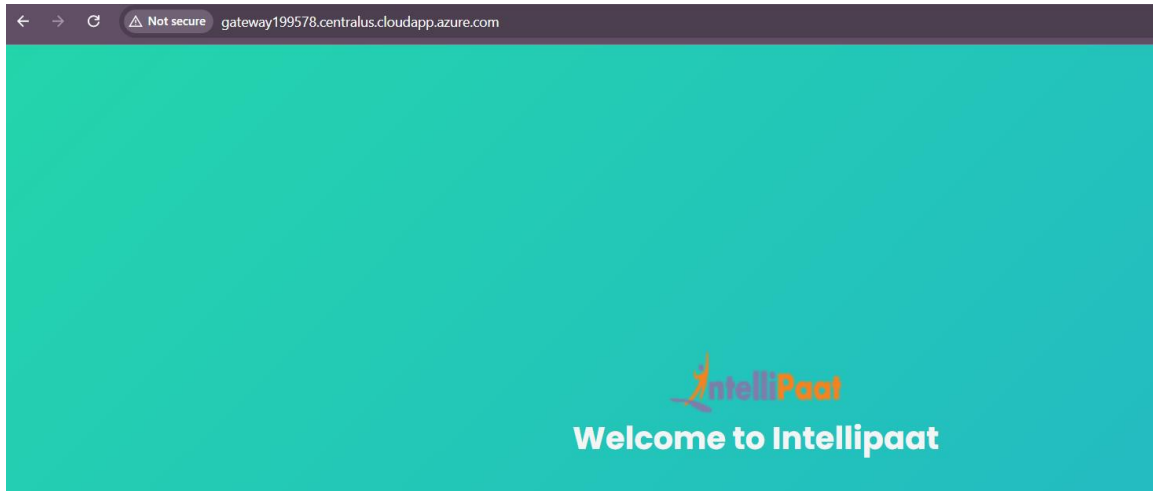
Filter for any field...

Subscription equals all Resource group equals all Location equals all Add filter

Showing 1 to 2 of 2 records.

No grouping List view

Name	Public IP	Public IP	Private IP	Private IP	Resource group	Location	Subscription
AppGateway1	4.249.164.160	-	-	-	ResourceGroupCentralUS	Central US	Free Trial
myAppGateway2	13.91.125.154	-	-	-	ResourceGroupWestUS	West US	Free Trial



6.2. Configure HTTP Settings and Routing Rules

- Under **Settings** in the left-hand menu, select **HTTP settings**.
- Click on your existing HTTP setting or create a new one if required.
- Scroll down to the **Custom error pages** section.
- Set up the **Error page URLs** for 403 and 502 errors:
- For **403 error**, use the URL of your error.html hosted in the Azure Storage Static Website (e.g., <https://<storage-account-name>.z13.web.core.windows.net/error.html>).
- For **502 error**, use the same URL if desired.
- After entering the custom error page URLs, click **Save**.

Home > Load balancing | Application Gateway > AppGateway1 | Listeners >

Httplistener ...

AppGateway1

Port * ⓘ

80


Associated rule

[Rule1](#)

Listener type ⓘ

☒ Basic ☐ Multi site

Custom error pages

Show customized error pages for different response codes generated by Application Gateway. This section lets you configure Listener-specific error pages. [Learn more](#) 

Please verify that the url(s) being added here is reachable from your application gateway using the [connection troubleshoot](#) tool to prevent any deployment error.

Bad Gateway - 502

[https://mystorageaccount199578.blob.core.windows.net/\\$web/error.html](https://mystorageaccount199578.blob.core.windows.net/$web/error.html)

Forbidden - 403

[https://mystorageaccount199578.blob.core.windows.net/\\$web/error.html](https://mystorageaccount199578.blob.core.windows.net/$web/error.html)

[Show more status codes](#)

Save

Cancel

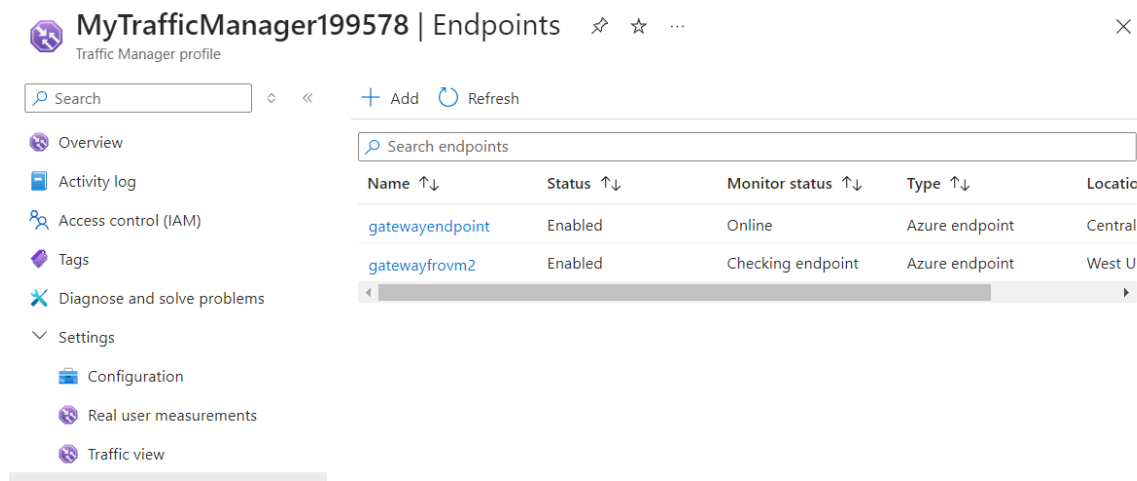
7. Implement Traffic Manager

1. Create Traffic Manager Profile:

- Click on **Create a resource** and select **Networking > Traffic Manager profile**.
- Fill in the details (name: MyTrafficManager199578, routing method: Performance).
- Click **Create**.

2. Add Endpoints:

- In the Traffic Manager profile, click on **Endpoints** and add both application gateways as endpoints.



MyTrafficManager199578 | Endpoints Traffic Manager profile

Search endpoints

Name ↑↓	Status ↑↓	Monitor status ↑↓	Type ↑↓	Location
gatewayendpoint	Enabled	Online	Azure endpoint	Central
gatewayfrom2	Enabled	Checking endpoint	Azure endpoint	West U

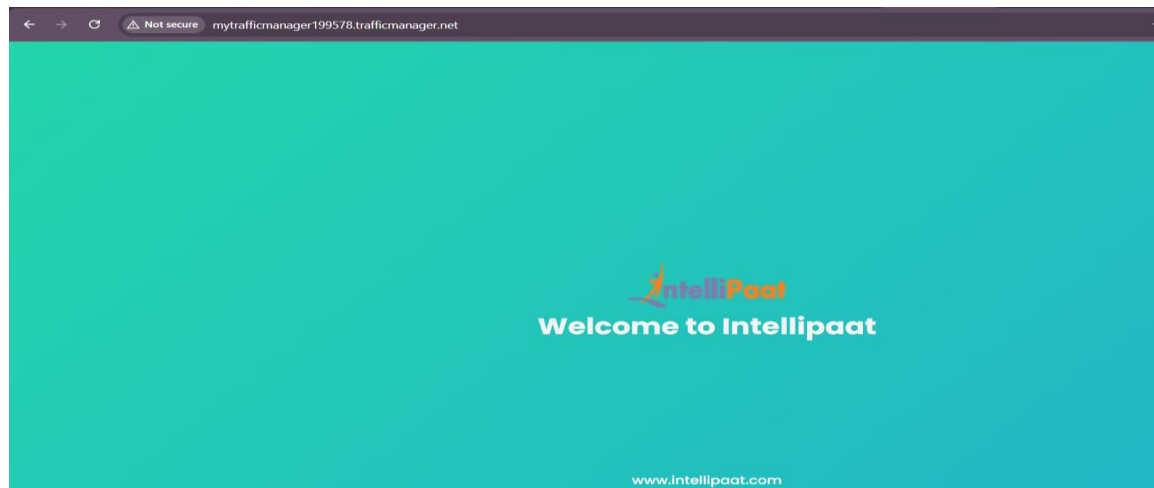
Left sidebar menu:

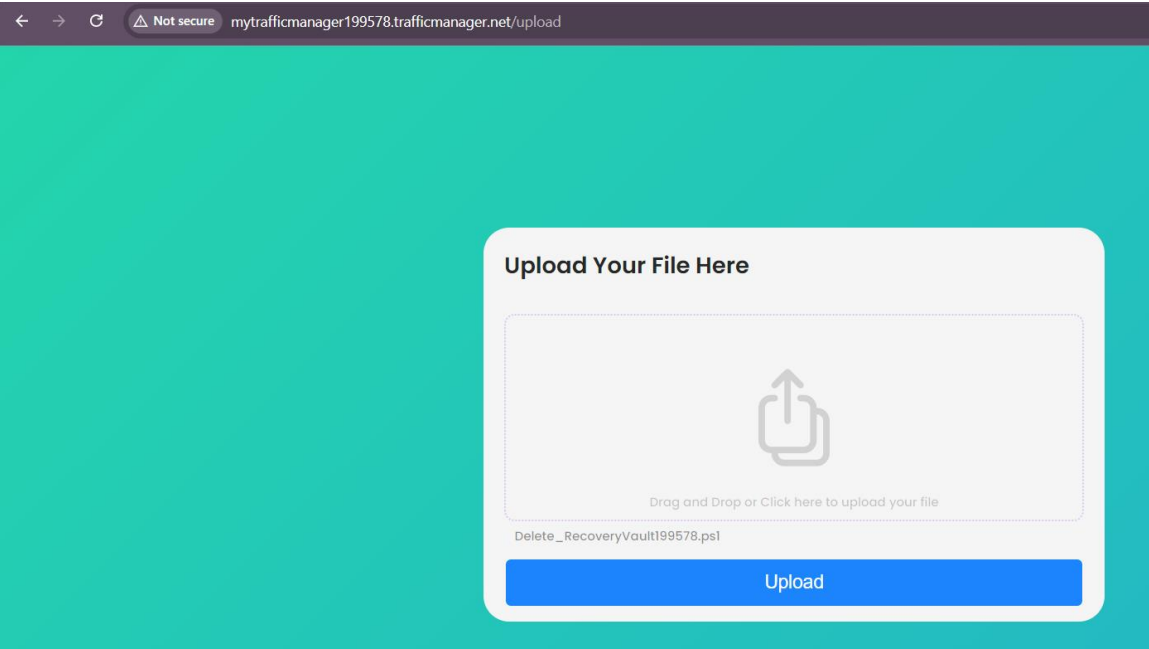
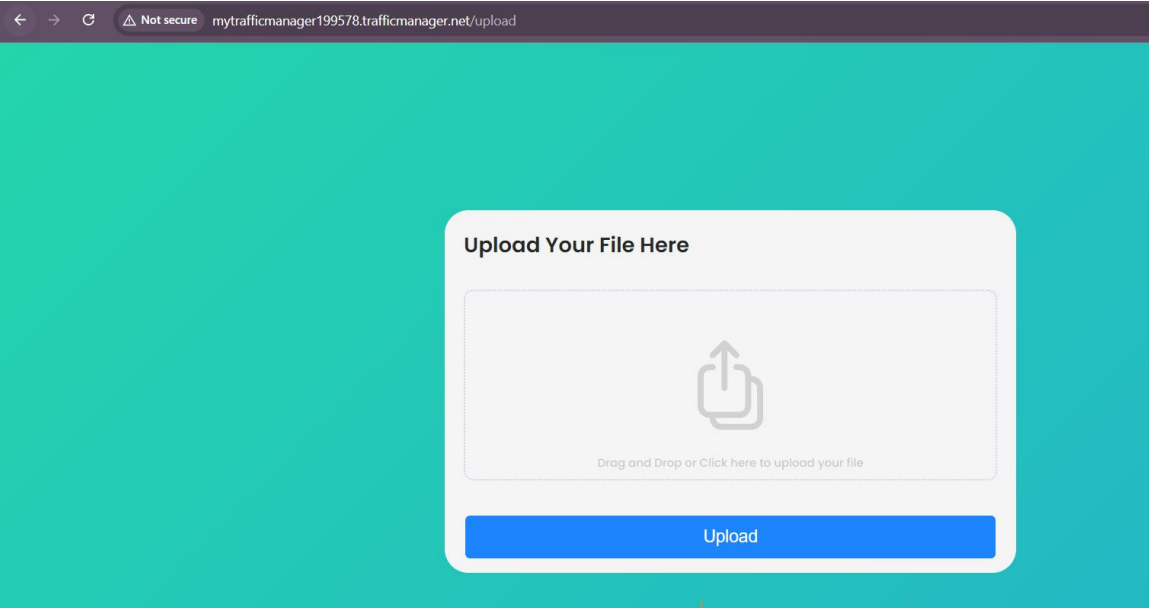
- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Settings
 - Configuration
 - Real user measurements
 - Traffic view

9. Validate the Setup

1. Access the Application:

- Open a browser and go to <http://mytrafficmanager199578.trafficmanager.net/> to test the application.





Home > Storage accounts > mystorageaccount199578 | Containers >

upload ...

Container

Search

Upload Change access level Refresh Delete Change tier Acquire lease Break lease View snapshots Create snapshot Give feedback

Overview

Diagnose and solve problems

Access Control (IAM)

Settings

Shared access tokens

Access policy

Properties

Metadata

Authentication method: Access key (Switch to Microsoft Entra user account)

Location: upload

Search blobs by prefix (case-sensitive)

Show deleted blobs

Add filter

Name	Modified	Access tier	Archive status	Blob type	Size	Lease state
<input type="checkbox"/> Delete_RecoveryVault199578.ps1	10/2/2024, 2:18:39 PM	Hot (Inferred)		Block blob	15.95 KiB	Available ***
<input type="checkbox"/> VMbackup_key.pem	10/2/2024, 1:20:13 PM	Hot (Inferred)		Block blob	2.44 KiB	Available ***

