Cloud Development, 2021 fall.
Homework 1

Report

Functions

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Almaty 2021

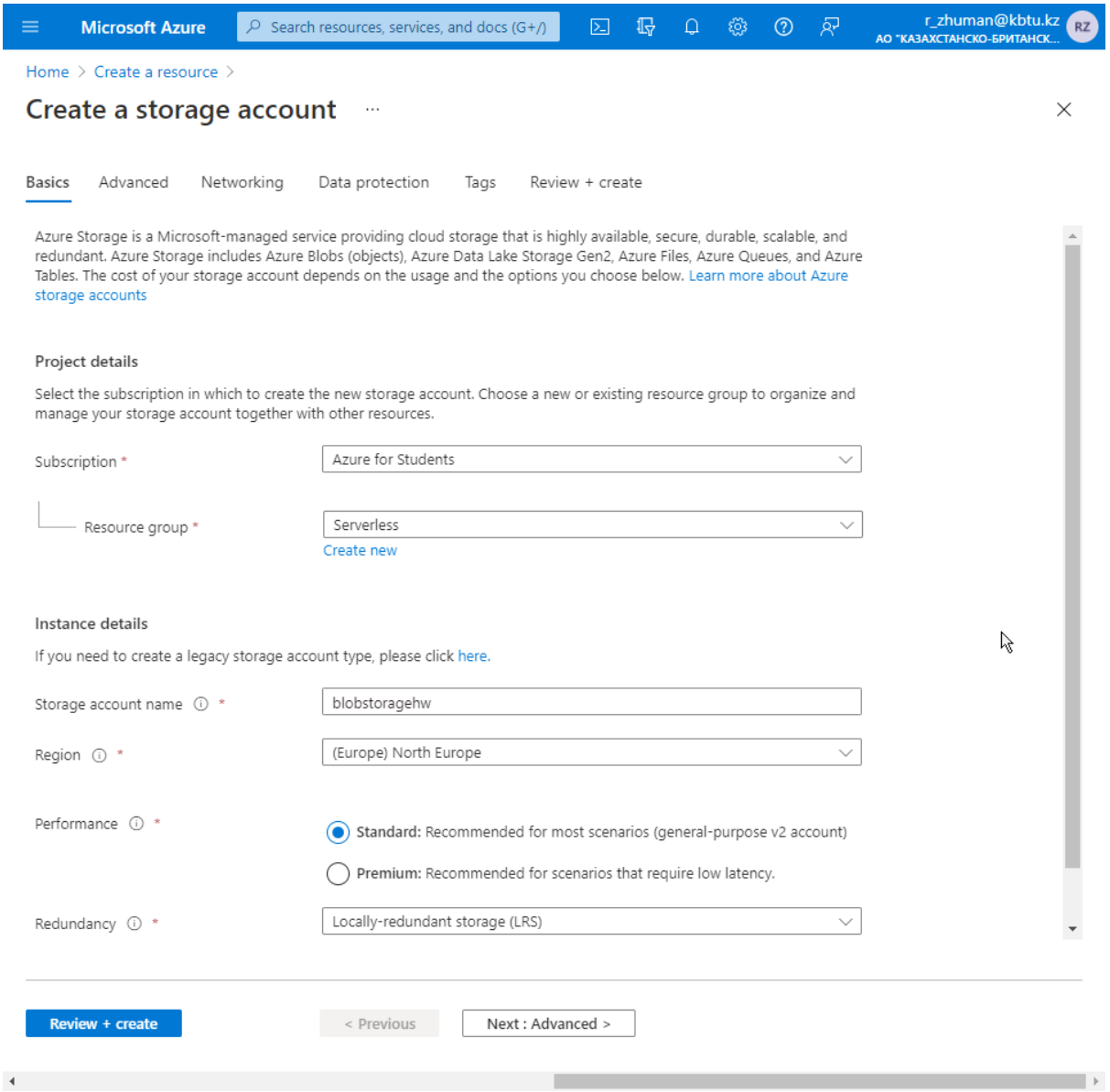
Task

In the Lab 1 all uploaded images have original size, which can be really big. To make the response of the site better and faster, develop an Azure Function, which will react on a new image adding event and will create a thumbnail of the image added and put it in another container, which will be used as a thumbnail storage for the site.

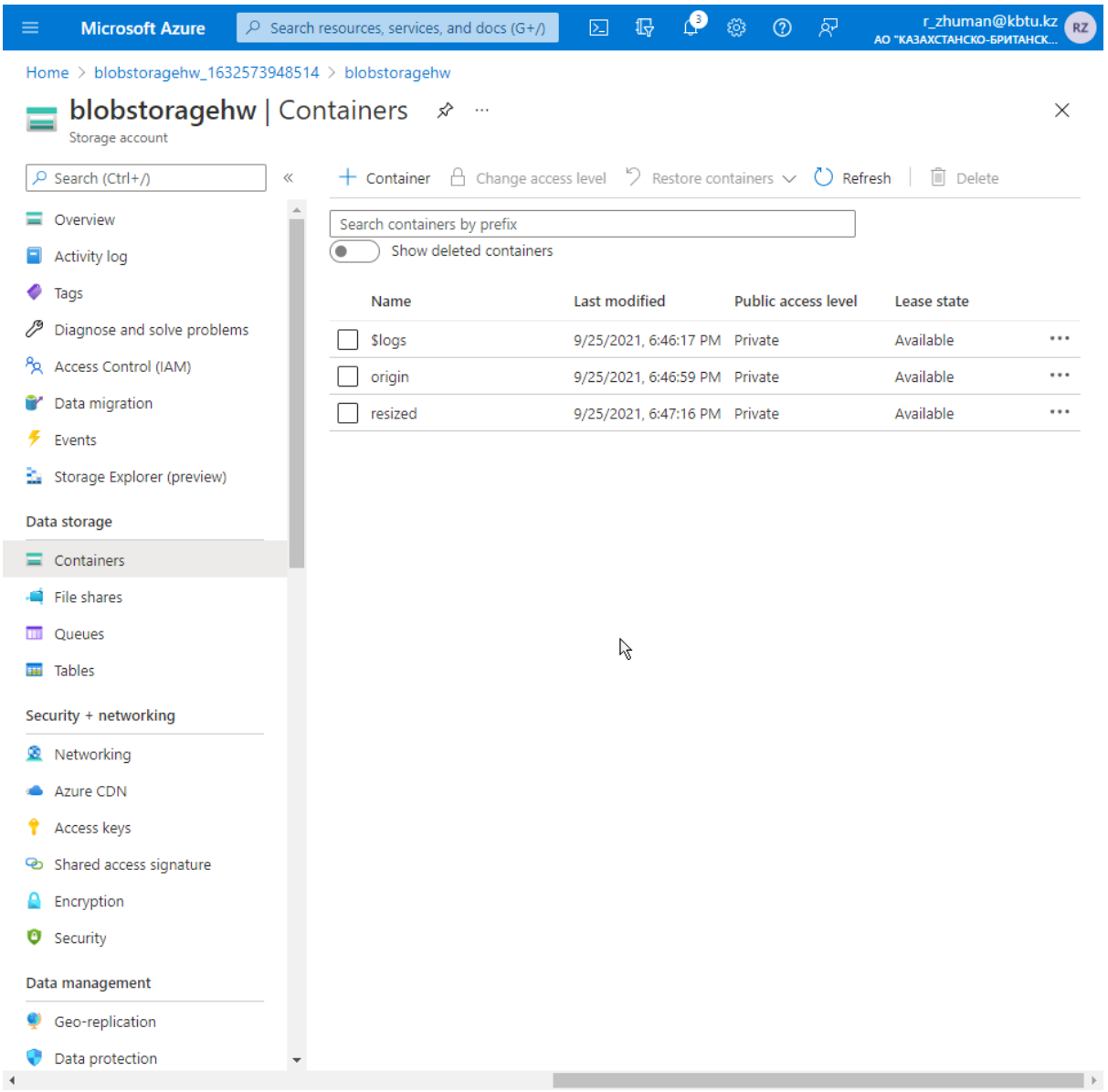
- The function trigger type should be an Azure Blob Storage trigger.
- The language of the code to your taste.
- For check-in, please, upload a code of the function created and a screenshot with the function integration page.
- Tip: use samples and documentation for ideas.

Report

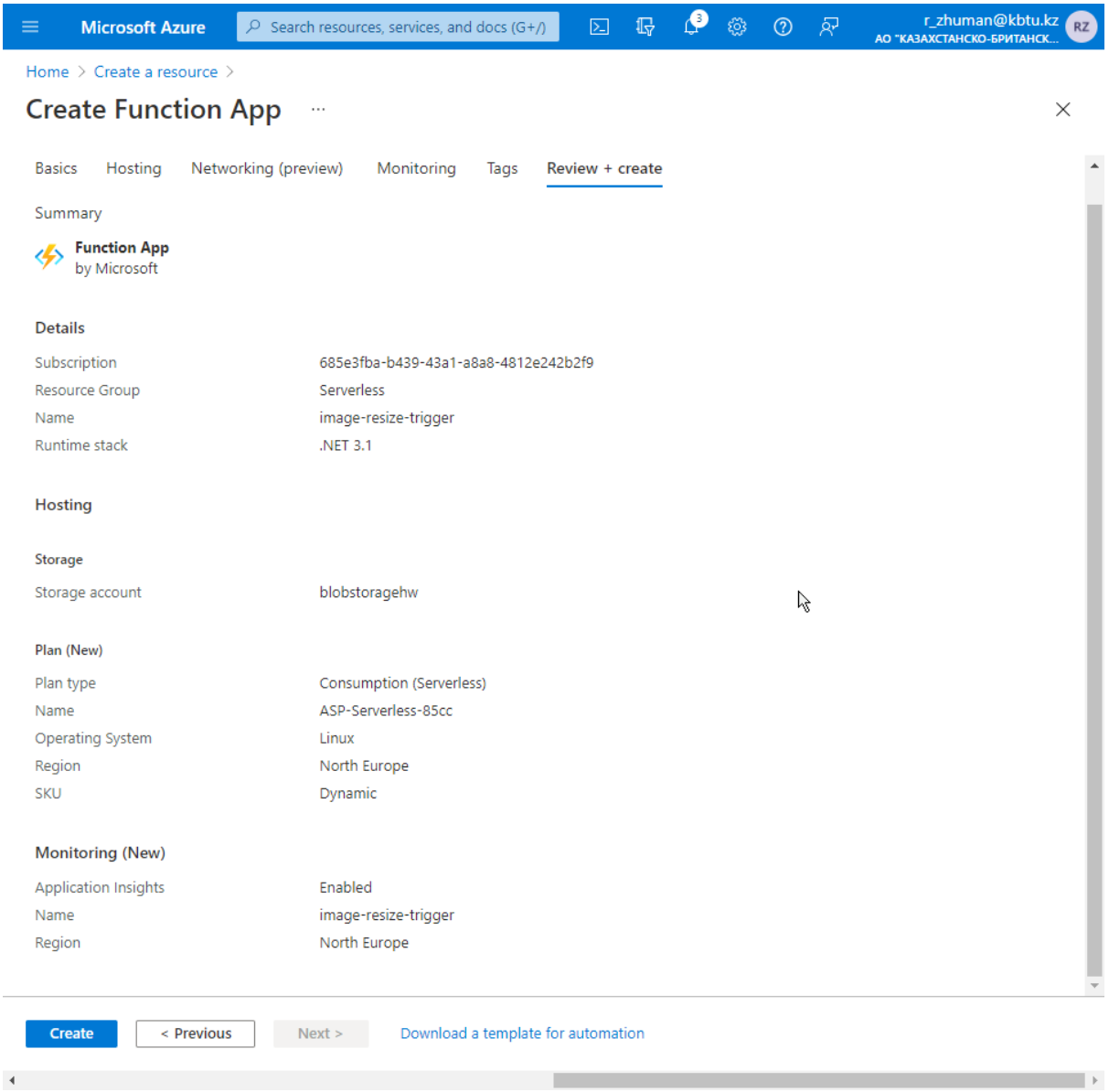
Create storage account



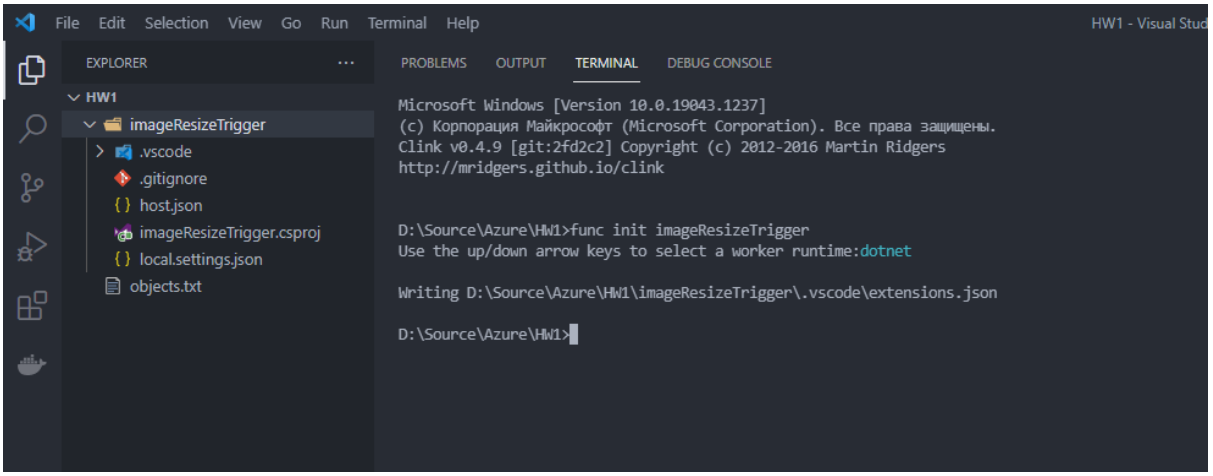
Create 2 container for origin images and resized images



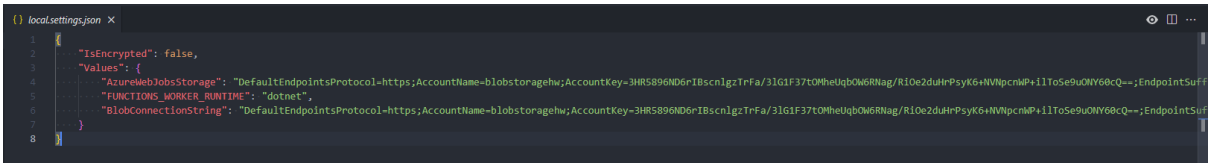
Create function app and store connection string



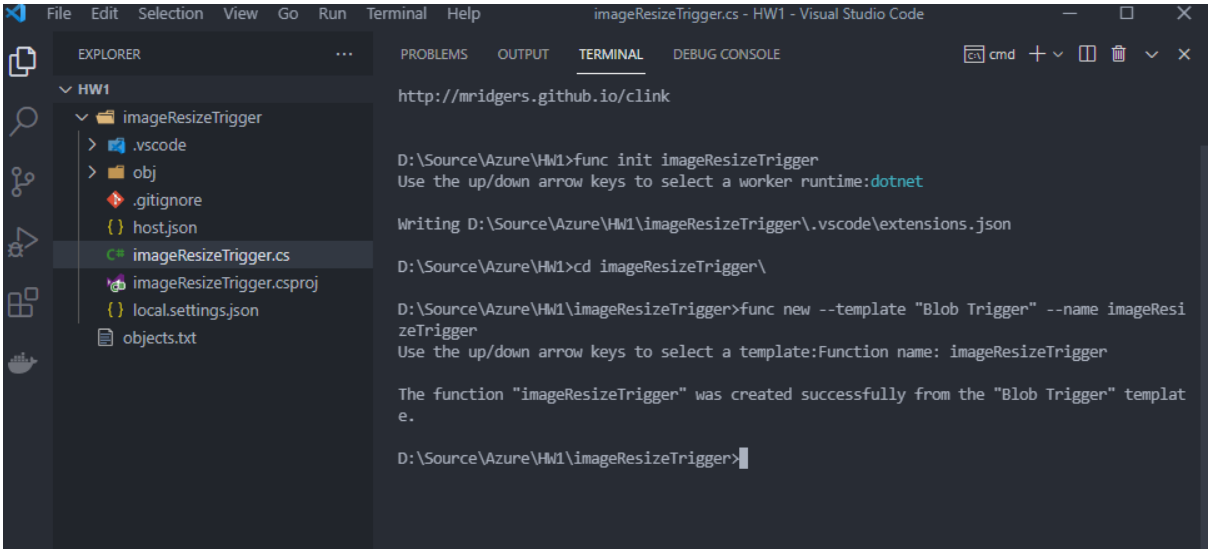
Create project and init



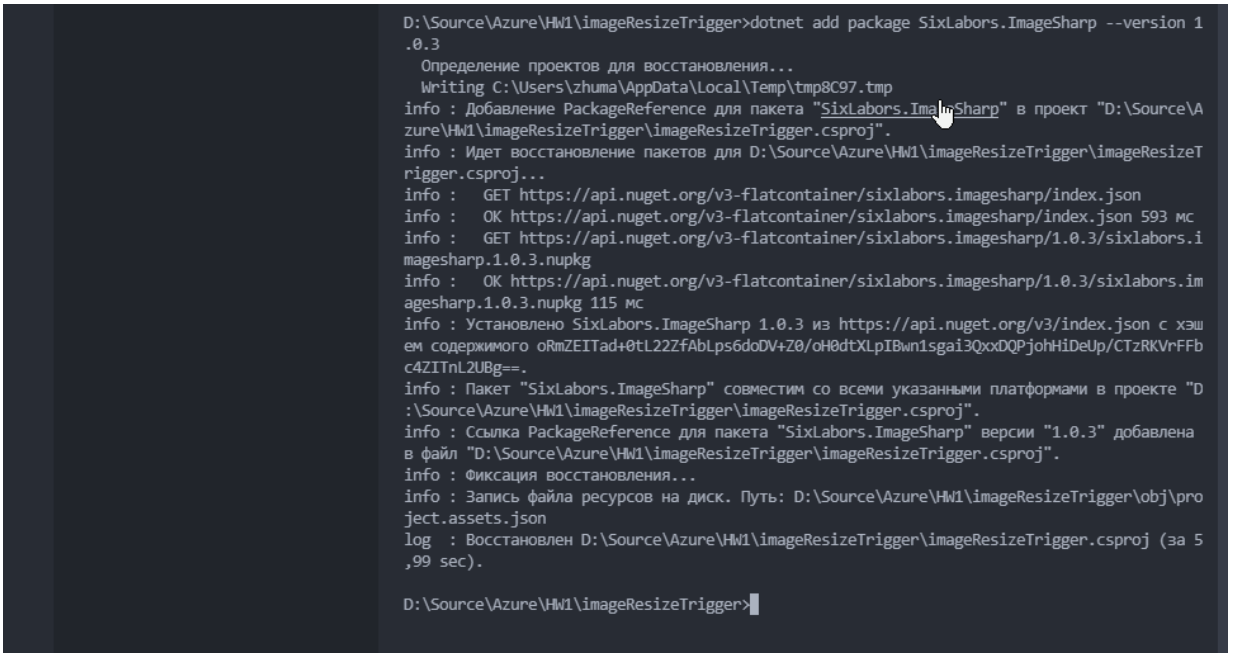
Set connection string in config file



Create Blob trigger



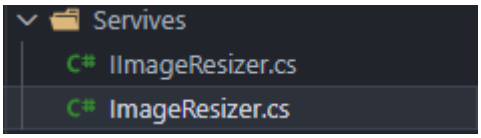
Installed packages:
dotnet add package Microsoft.Extensions.DependencyInjection --version 5.0.2
dotnet add package Microsoft.Azure.Functions.Extensions --version 1.1.0
dotnet add package Microsoft.Extensions.Azure --version 1.1.1
dotnet add package SixLabors.ImageSharp --version 1.0.3



Edit imageResizeTriger.cs

```
using System;
using System.IO;
using Microsoft.Azure.WebJobs;
using Microsoft.Azure.WebJobs.Host;
using Microsoft.Extensions.Logging;
namespace imageResizeTrigger
{
    public class imageResizeTrigger
    {
        [FunctionName("imageResizeTrigger")]
        public void Run(
            [BlobTrigger("origin/{name}")] Stream inputBlob,
            [Blob("resized/{name}", FileAccess.Write)] Stream
outputBlob,
            string name,
            ILogger log)
        {
            log.LogInformation($"C# Blob trigger function Processed
blob\n Name:{name} \n Size: {inputBlob.Length} Bytes");

        }
    }
}
```

Create new folder Services, then interface and class



Implement interface IImageResizer.cs

```
using System;
using System.IO;
using System.Collections.Generic;
using System.Text;

namespace imageResizeTrigger.Services
{
    public interface IImageResizer
    {
        void Resize(Stream input, Stream output);
    }
}
```

Implement class using library ImageSharp

```
using System.IO;
using SixLabors.ImageSharp;
using SixLabors.ImageSharp.Formats.Jpeg;
using SixLabors.ImageSharp.Processing;

namespace imageResizeTrigger.Services
{
    public class ImageResizer: IImageResizer
    {
        public void Resize(Stream input, Stream output)
        {
            using (Image image = Image.Load(input))
            {
                image.Mutate(x => x.Resize(image.Width / 2,
image.Height / 2));
                image.Save(output, new JpegEncoder());
            }
        }
    }
}
```

Add new class Startup for configure new function

```
using Microsoft.Azure.Functions.Extensions.DependencyInjection;
using Microsoft.Extensions.DependencyInjection;
using imageResizeTrigger.Services;


[assembly: FunctionsStartup(typeof(imageResizeTrigger.Startup))]
namespace imageResizeTrigger
{
    public class Startup: FunctionsStartup
    {
        public override void Configure(IFunctionsHostBuilder builder)
        {
            builder.Services.AddSingleton<IImageResizer,
ImageResizer>();
        }
    }
}
```

Edit trigger function to use function for resize

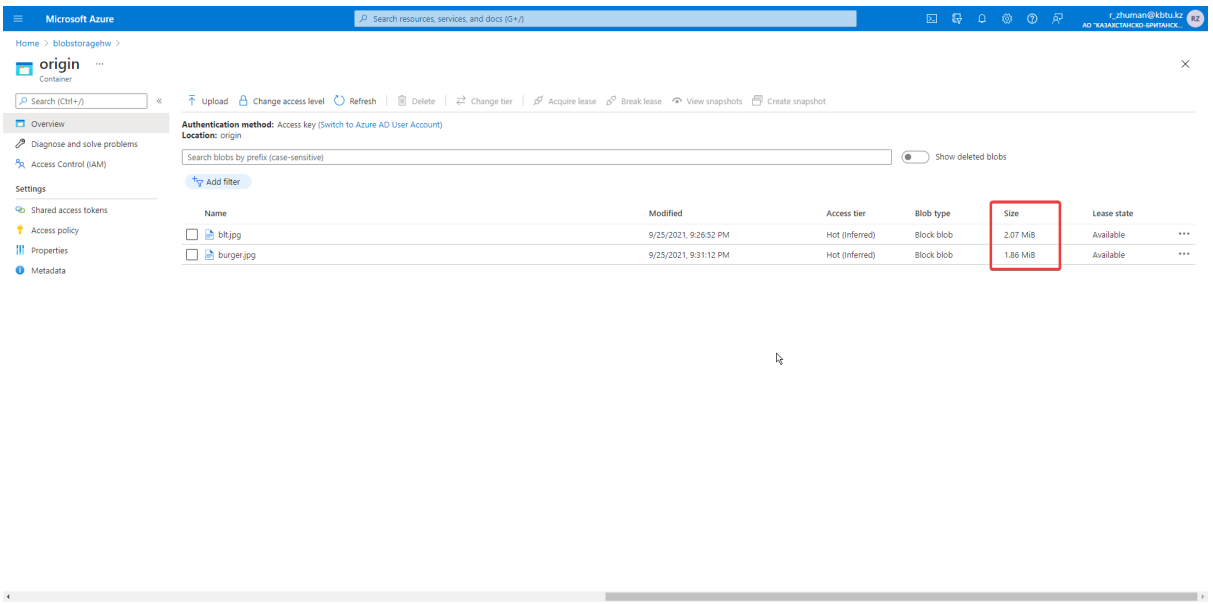
```
using System;
using System.IO;
using Microsoft.Azure.WebJobs;
using Microsoft.Azure.WebJobs.Host;
using Microsoft.Extensions.Logging;
using imageResizeTrigger.Services;

namespace imageResizeTrigger
{
    public class imageResizeTrigger
    {
        private readonly IImageResizer imageResizer;

        public imageResizeTrigger(IImageResizer imageResizer)
        => this.imageResizer = imageResizer;

        [FunctionName("imageResizeTrigger")]
        public void Run(
            [BlobTrigger("origin/{name}")] Stream inputBlob,
            [Blob("resized/{name}", FileAccess.Write)] Stream
outputBlob,
            string name,
            ILogger log)
        {
            log.LogInformation($"C# Blob trigger function Processed
blob\n Name:{name} \n Size: {inputBlob.Length} Bytes");

            try
            {
                this.imageResizer.Resize(inputBlob, outputBlob);

                log.LogInformation("Reduced images saved to blob
storage");

            }
            catch(Exception e)
            {
                log.LogError("Resize fails",e);
            }
        }
    }
}
```

Build app

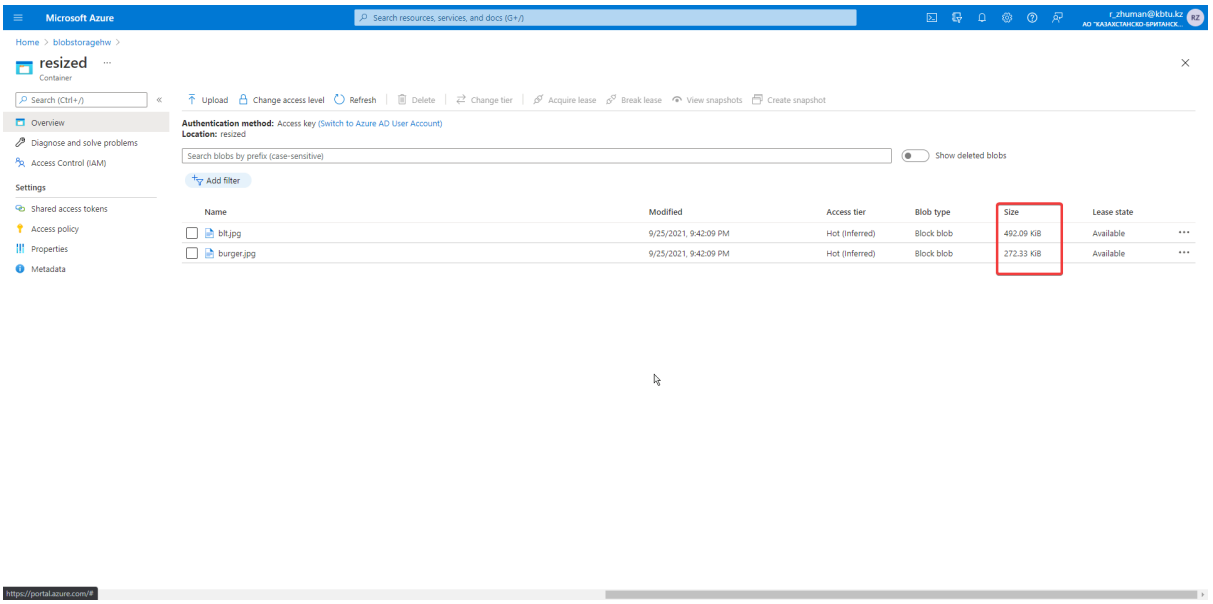
```
[2021-09-25T15:41:51.535Z] Found D:\Source\Azure\HW1\imageResizeTrigger\imageResizeTrigg
er.csproj. Using for user secrets file configuration.

Functions:

        imageResizeTrigger: blobTrigger

For detailed output, run func with --verbose flag.
[2021-09-25T15:41:58.996Z] Executing 'imageResizeTrigger' (Reason='New blob detected: or
igin/blt.jpg', Id=f3215642-ee06-4b4f-a8a3-1c5ada123097)
[2021-09-25T15:41:59.003Z] C# Blob trigger function Processed blob
 Name:blt.jpg
 Size: 2174293 Bytes
[2021-09-25T15:42:00.183Z] Executing 'imageResizeTrigger' (Reason='New blob detected: or
igin/burger.jpg', Id=a050a55a-d27a-4189-b47b-87e59161dd23)
[2021-09-25T15:42:00.190Z] C# Blob trigger function Processed blob
 Name:burger.jpg
 Size: 1947092 Bytes
[2021-09-25T15:42:01.475Z] Host lock lease acquired by instance ID '00000000000000000000
0000E10CE443'.
[2021-09-25T15:42:09.399Z] Reduced images saved to blob storage
[2021-09-25T15:42:09.579Z] Executed 'imageResizeTrigger' (Succeeded, Id=a050a55a-d27a-41
89-b47b-87e59161dd23, Duration=9831ms)
[2021-09-25T15:42:09.656Z] Reduced images saved to blob storage
[2021-09-25T15:42:09.814Z] Executed 'imageResizeTrigger' (Succeeded, Id=f3215642-ee06-4b
4f-a8a3-1c5ada123097, Duration=11330ms)
```

Results

Container origin



Container resized

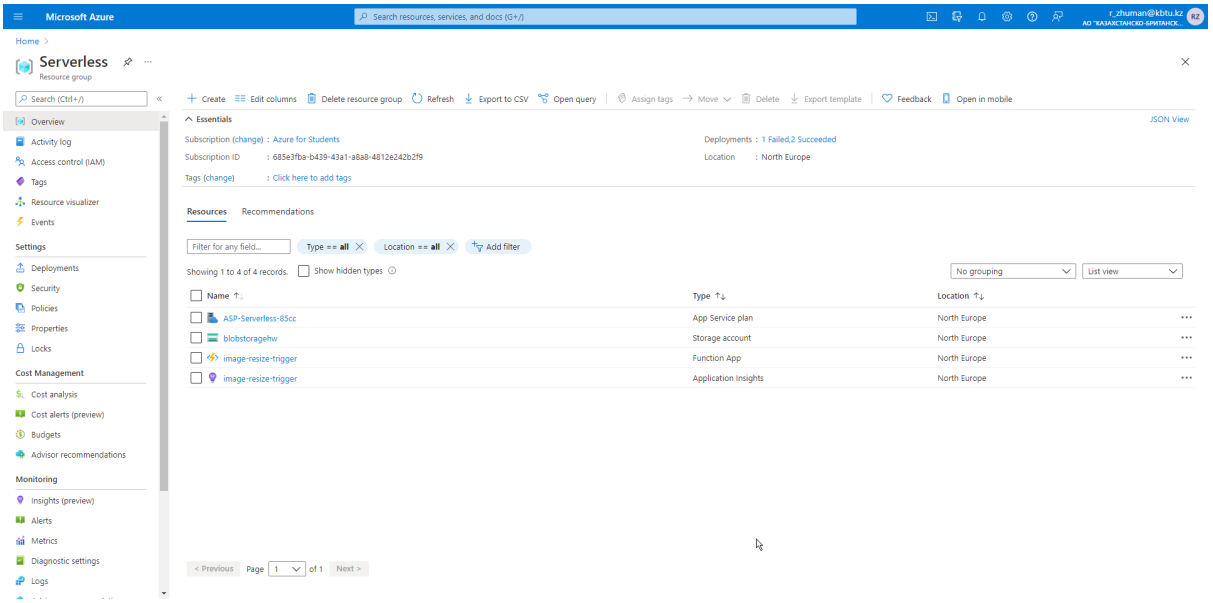


Deploy

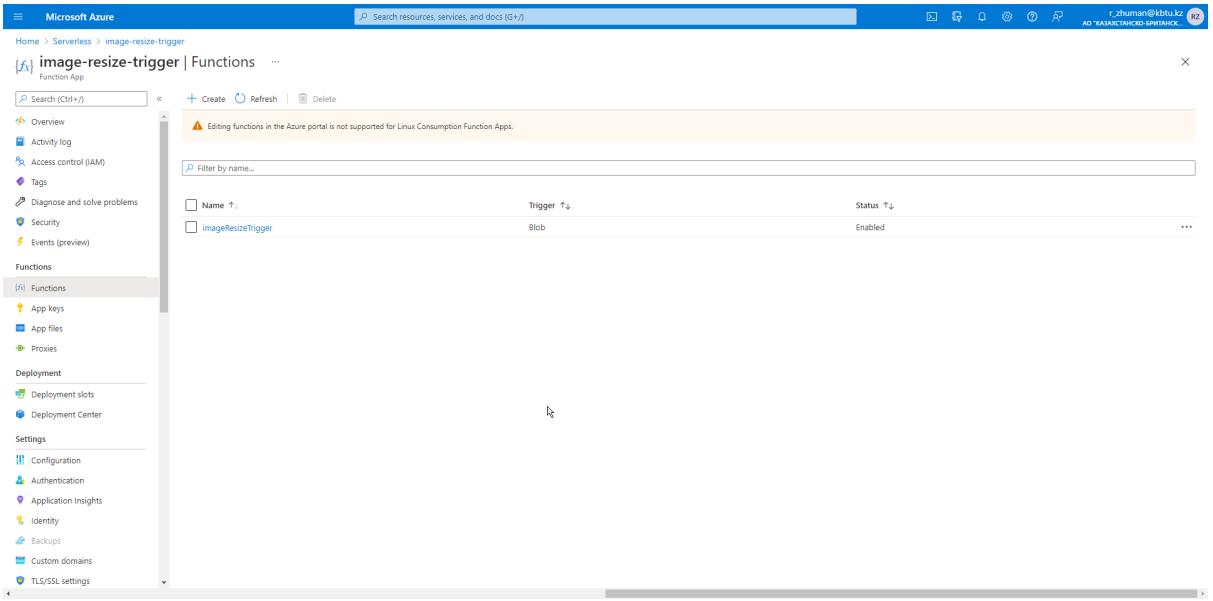
>> az login

>> func azure functionapp publish image-resize-trigger

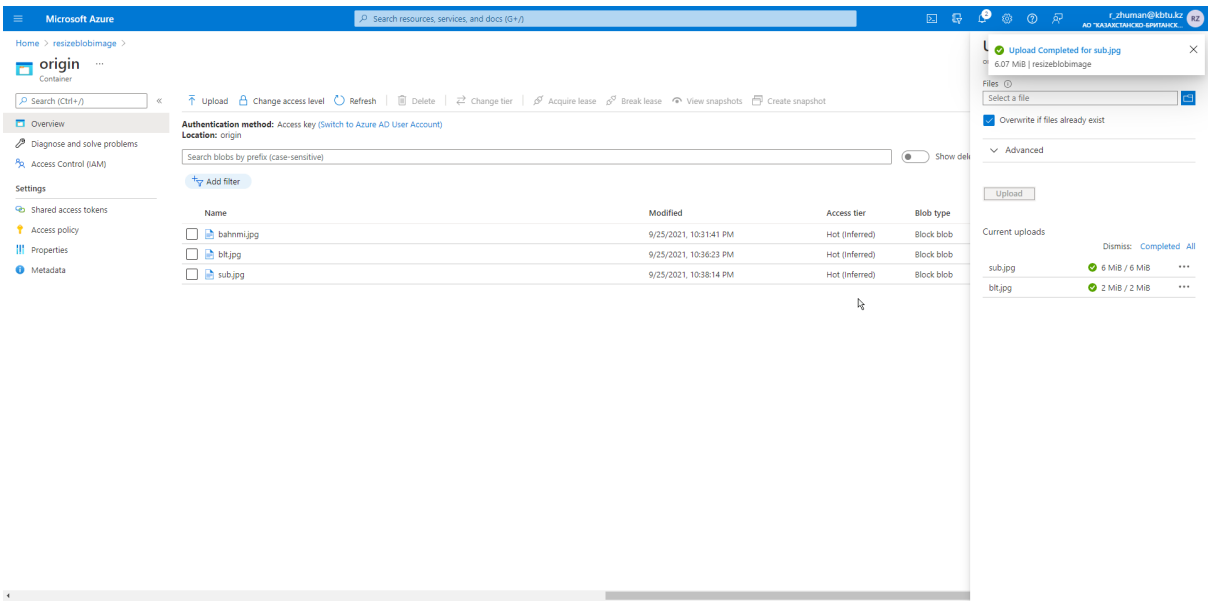
```
D:\Source\Azure\HW1\imageResizeTrigger>func azure functionapp publish image-resize-trigger
Microsoft (R) Build Engine версии 16.11.0+0538acc04 для .NET
(C) Корпорация Майкрософт (Microsoft Corporation). Все права защищены.

  Определение проектов для восстановления...
  Все проекты обновлены для восстановления.
  imageResizeTrigger -> D:\Source\Azure\HW1\imageResizeTrigger\bin\publish\imageResizeTrigger.dll

Сборка успешно завершена.
    Предупреждений: 0
    Ошибок: 0

Прошло времени 00:00:07.20


Getting site publishing info...
Uploading package...
Uploading 5 MB [########################################################################################]
Upload completed successfully.
Deployment completed successfully.
Syncing triggers...
Functions in image-resize-trigger:
    imageResizeTrigger - [blobTrigger]
```

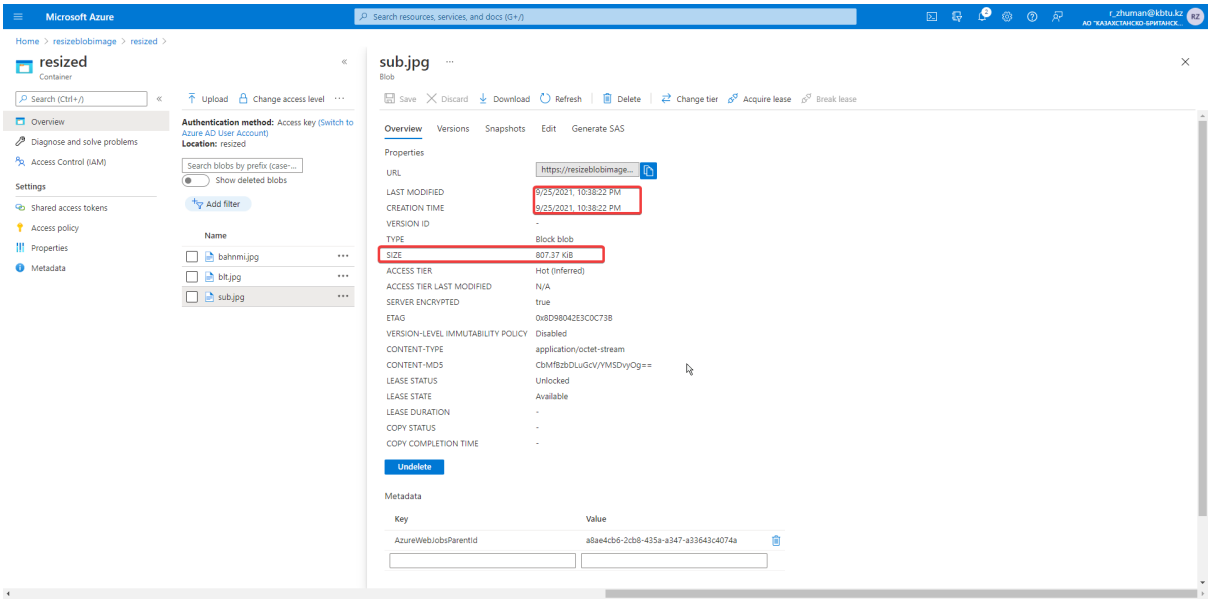


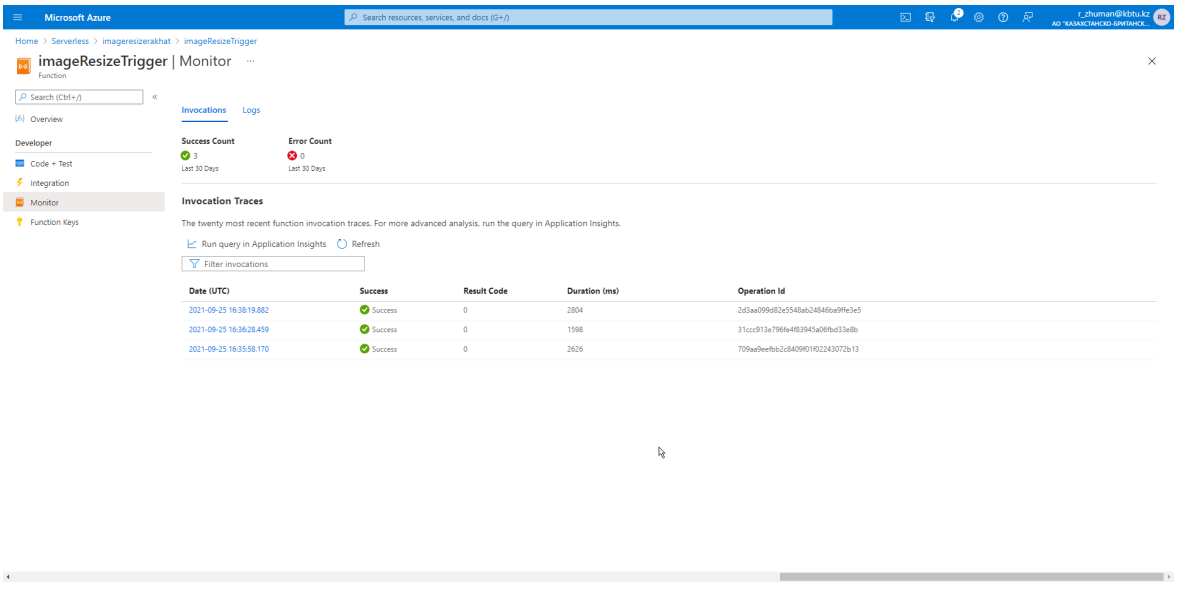
Unfortunately, testing on my plan is not valid

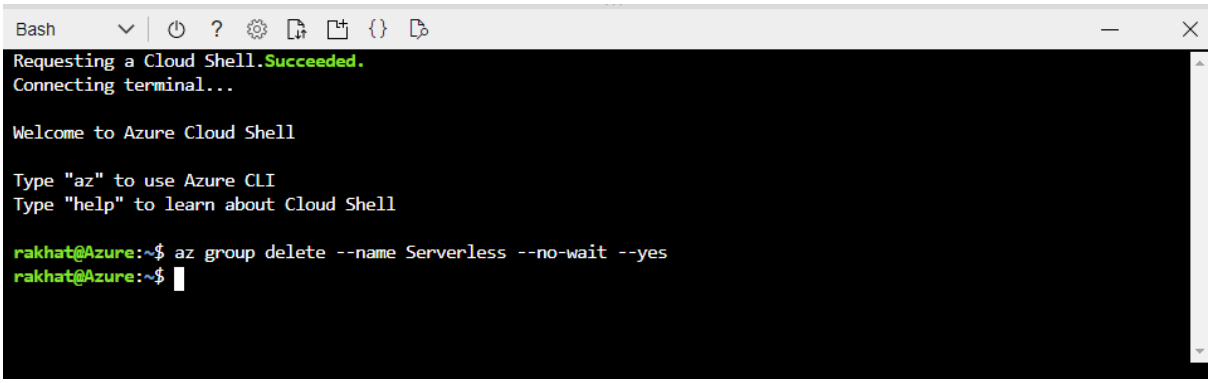
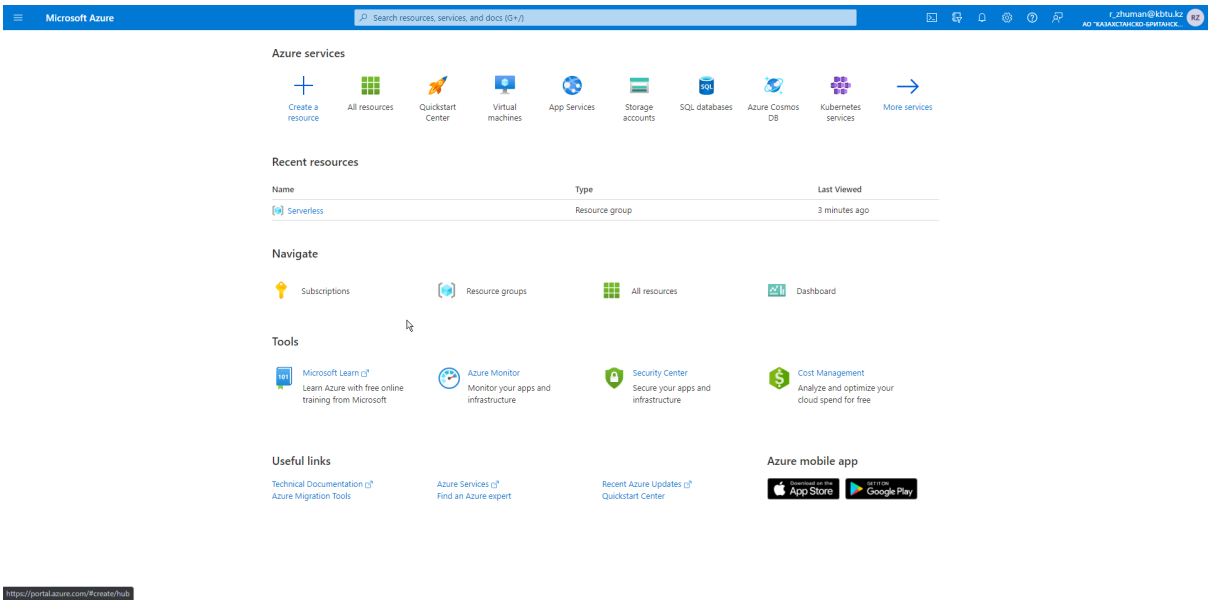


Real time check after deploy (I forgot to show this moment after deployment, so I created everything anew and deployed)


Microsoft Azure
Search resources, services, and docs (G+/)
r_zhuman@kbtu.kz
АО "КАЗАХСТАНСКО-БРИТАНСК...
Home > resizeblobimage >
origin
Container
Search (Ctrl+/)
Overview
Diagnose and solve problems
Access Control (IAM)
Settings
Shared access tokens
Access policy
Properties
Metadata
Upload
Change access level
Refresh
Delete
Change tier
Acquire lease
Break lease
View snapshots
Create snapshot
Authentication method: Access key (Switch to Azure AD User Account)
Location: origin
Search blobs by prefix (case-sensitive)
Add filter
Name
Modified
Access tier
Blob type
bahnmi.jpg
9/25/2021, 10:31:41 PM
Hot (Inferred)
Block blob
blt.jpg
9/25/2021, 10:36:23 PM
Hot (Inferred)
Block blob
sub.jpg
9/25/2021, 10:38:14 PM
Hot (Inferred)
Block blob
Upload Completed for sub.jpg
6.07 MiB | resizeblobimage
Files
Select a file
Overwrite if files already exist
Advanced
Upload
Current uploads
Dismiss: Completed All
sub.jpg
6 MiB / 6 MiB
blt.jpg
2 MiB / 2 MiB


Microsoft Azure
Search resources, services, and docs (G+/)
r_zhuman@kbtu.kz
АО "КАЗАХСТАНСКО-БРИТАНСК...
Home > resizeblobimage > resized >
resized
Container
Search (Ctrl+/)
Overview
Diagnose and solve problems
Access Control (IAM)
Settings
Shared access tokens
Access policy
Properties
Metadata
Upload
Change access level
Authentication method: Access key (Switch to Azure AD User Account)
Location: resized
Search blobs by prefix (case-...
Show deleted blobs
Add filter
Name
bahnmi.jpg
blt.jpg
sub.jpg
sub.jpg
Blob
Save
Discard
Download
Refresh
Delete
Change tier
Acquire lease
Break lease
Overview
Versions
Snapshots
Edit
Generate SAS
Properties
URL
https://resizeblobimage...
LAST MODIFIED
9/25/2021, 10:38:22 PM
CREATION TIME
9/25/2021, 10:38:22 PM
VERSION ID
-
TYPE
Block blob
SIZE
807.37 KiB
ACCESS TIER
Hot (Inferred)
ACCESS TIER LAST MODIFIED
N/A
SERVER ENCRYPTED
true
ETAG
0x8D98042E3C0C73B
VERSION-LEVEL IMMUTABILITY POLICY
Disabled
CONTENT-TYPE
application/octet-stream
CONTENT-MD5
CbMfBzbDLuGcV/YM5DvyOg==
LEASE STATUS
Unlocked
LEASE STATE
Available
LEASE DURATION
-
COPY STATUS
-
COPY COMPLETION TIME
-
Undelete
Metadata
Key
Value
AzureWebJobsParentId
a8ae4cb6-2cb8-435a-a347-a33643c4074a


Microsoft Azure
Search resources, services, and docs (G+/)
r_zhuman@kbtu.kz
АО "КАЗАХСТАНСКО-БРИТАНСК...
Home > Serverless > imageresizerakhat > imageResizeTrigger
imageResizeTrigger | Monitor
Function
Search (Ctrl+/)
Overview
Developer
Code + Test
Integration
Monitor
Function Keys
Invocations
Logs
Success Count
3
Last 30 Days
Error Count
0
Last 30 Days
Invocation Traces
The twenty most recent function invocation traces. For more advanced analysis, run the query in Application Insights.
Run query in Application Insights
Refresh
Filter invocations
Date (UTC)
Success
Result Code
Duration (ms)
Operation Id
2021-09-25 16:38:19.882
Success
0
2804
2d3aa099d82e5548ab24846ba9ffe3e5
2021-09-25 16:36:28.459
Success
0
1598
31ccc913e796fe4f83945a06fbd33e8b
2021-09-25 16:35:58.170
Success
0
2626
709aa9eefbb2c8409f01f02243072b13

Cleaning up my subscription

>> az group delete --name Serverless --no-wait --yes