🗄 **cjoakim** / **azure-logicapp-blob-aci-dotnet**

<> Code   ⊘ Issues   ⑂ Pull requests   ▶ Actions   ▦ Projects   📖 Wiki   ⊘ Security   📈 Insights   ⚙ Setti

⑂ master ⌄   ⑂ **1** branch   ⬦ **0** tags   Go to file   Add file ⌄   Code ⌄

(avatar) **cjoakim** Updated for 8/12		0ceedd8 on Aug 11 ⟳ **48** commits	
📁 admin	Enhancements to download and delete the bl…	7 months ago	
📁 automation	Updated for 8/12	last month	
📁 blobs	Updated for 8/12	last month	
📁 img	Adding regular expressions	6 months ago	
📁 logic_app	logic app working concurrently, captured cod…	7 months ago	
📄 .gitignore	Enhancements to download and delete the bl…	7 months ago	
📄 LICENSE	Initial commit	7 months ago	
📄 README.md	README	6 months ago	
📄 backup.xml	Enhancements to download and delete the bl…	7 months ago	
📄 fluent_mgmt_sdk.md	added fluent_mgmt_sdk.md	6 months ago	

About   ⚙

Azure Logic App triggered by Azure Storage Blobs, executing an ACI container with DotNet Core code

📖 Readme

⚖ MIT License

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📄 regex.md	regex.md	6 months ago

Languages

- ● **C#** 62.2%
- ● **Shell** 29.4%
- ● **Python** 7.9%
- ● **Dockerfile** 0.5%

README.md ✏️

azure-logicapp-blob-aci-dotnet

Azure Logic App triggered by Azure Storage Blobs, executing an ACI container with DotNet Core code.

The Application

- Running race CSV rows for individual runners are uploaded to an Azure Storage **source** container
- An **Azure Logic App** is triggered for each of these new Storage blobs
- The Logic App does the following:
  - Gets the Triggering information (see sample JSON below), and passes it to a new **Azure Container Instance**
  - The **Azure Container Instance** then:
    - Reads the Triggering CSV blob
    - Parses the CSV, performs pace and speed calculations with the M26 library
    - Stores the resulting calculation as JSON in a **target** Storage container

- - Deletes the triggering blob from the **source** Storage container
  - Deletes the Azure Container Instance after a delay

CSV Data

Source

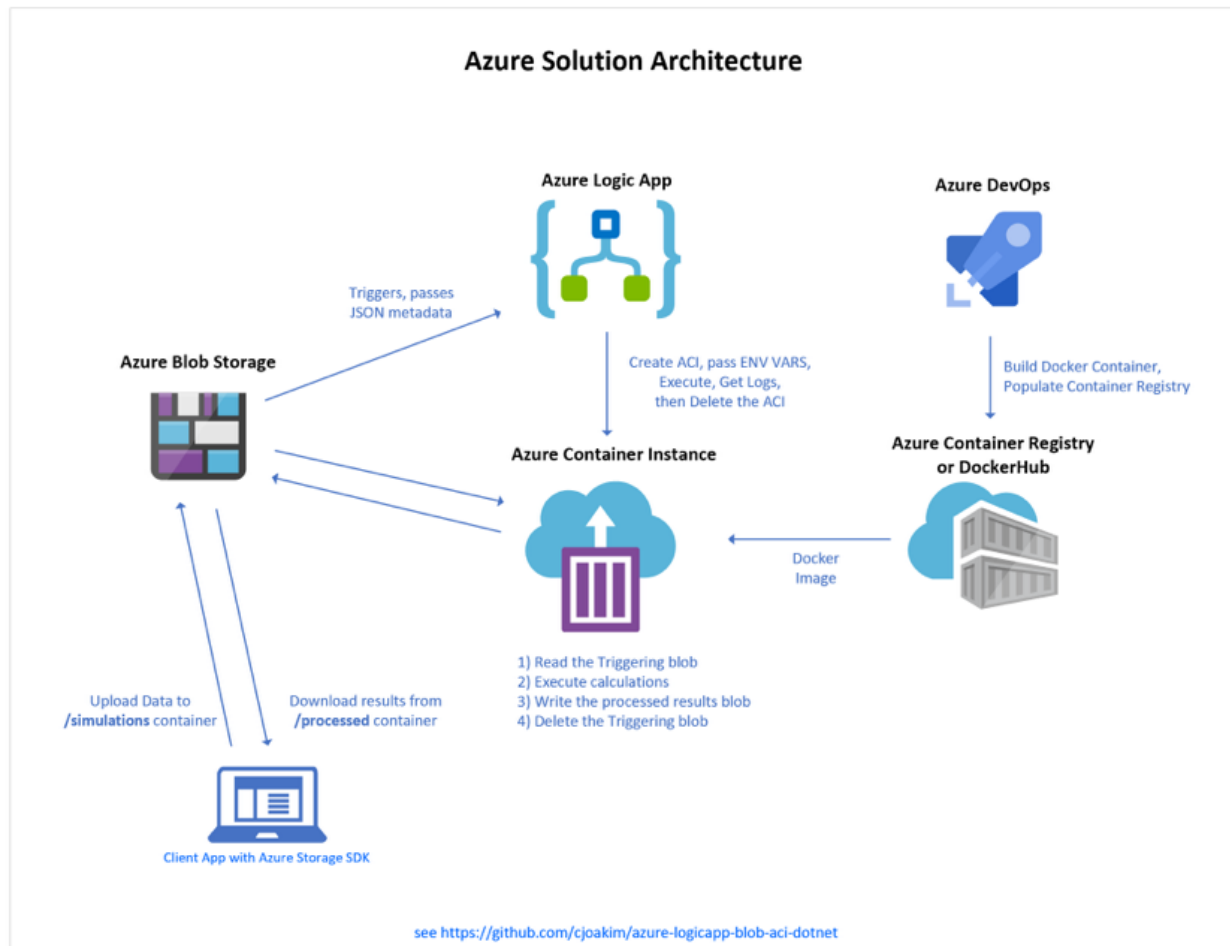https://ashevillemarathon.com/wp-content/uploads/2019/03/marathonoverall.htm

Sample

```
place|overall_place|name|city_st|bib|age|10K_rank|10K_time|bridge1_r

1|1|Ashley Carreon|Oklahoma City
OK|360|30|1|40:23.5|1|1:06:46.9|1|2:29:51.9|1|2:52:32.3|2:52:32.3|2:

1|2|Nathan Stewart|Cincinnati
OH|1010|36|1|41:23.2|2|1:08:28.5|1|2:31:58.2|1|2:53:55.8|2:53:55.8|2

2|3|Daniel Matena|Charlotte
NC|1323|35|4|41:41.3|4|1:09:11.0|2|2:33:55.2|2|2:54:33.5|2:54:33.5|2
```

Azure Architecture

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9/21/20, 7:55 AM

# DotNet Core Project Creation

Bootstrap the DotNet Core Project

```
$ dotnet --version
3.1.101
$ dotnet new console -o blobs
$ cd blobs
$ dotnet add package Microsoft.Azure.Storage.Blob
$ dotnet add package Joakimsoftware.M26 --version 1.0.0
$ dotnet build
$ dotnet run
Hello World!
```

See Program.cs and the other C# files in this repo for the implemented and working code.

Azure Logic

Azure Logic App Designer View
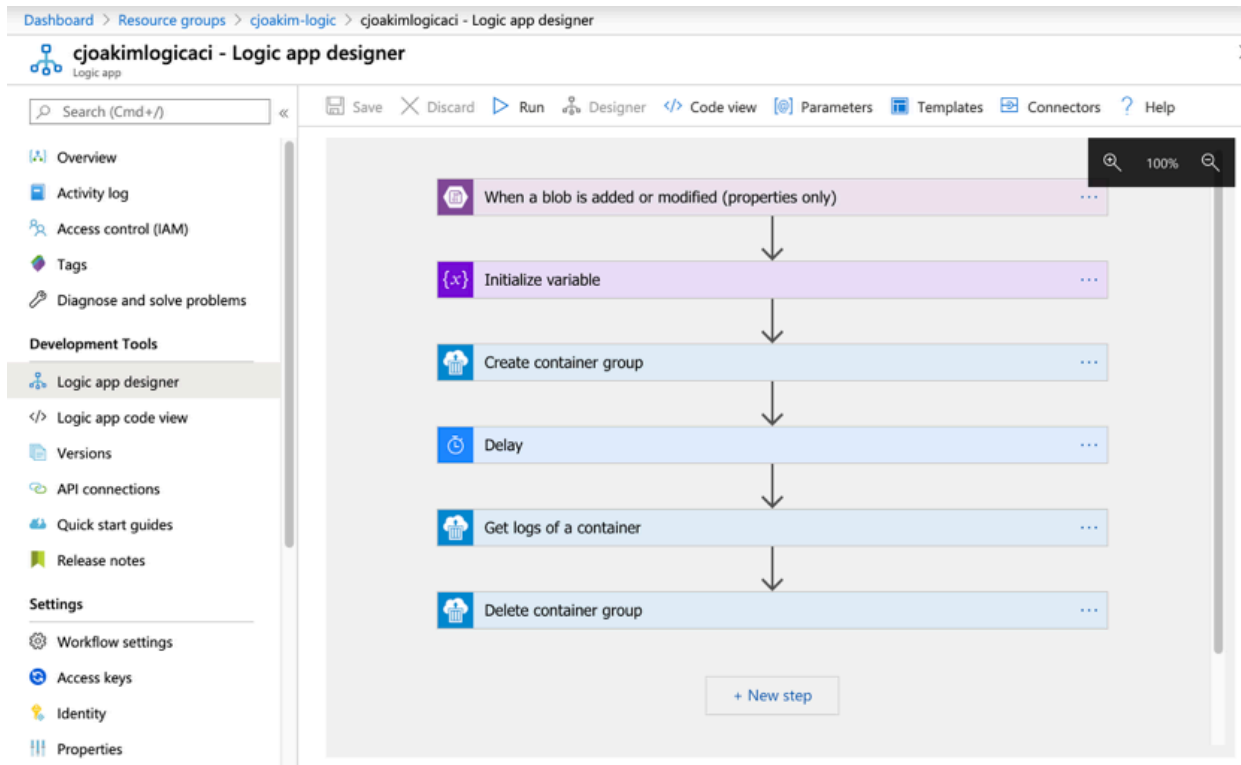
Sample Blob Trigger JSON

The JSON **triggerBody()** looks like this:

```
{
  "Id":
"JTJmc2ltdWxhdGlvbnMlMmZzdGFuX29ycl8xNTgyNzU4NjM2LmNzdg==",
  "Name": "stan_orr_1582758636.csv",
  "DisplayName": "stan_orr_1582758636.csv",
  "Path": "/simulations/stan_orr_1582758636.csv",
  "LastModified": "2020-02-26T23:10:36Z",
```

```
    "Size": 96,
    "MediaType": "text/csv",
    "IsFolder": false,
    "ETag": "\"0x8D7BB11167352C9\"",
    "FileLocator":
"JTJmc2ltdWxhdGlvbmMlMmZzdGFuX29ycl8xNTgyNzU4NjM2LmNzdg==",
    "LastModifiedBy": null
}
```

Azure Logic App Code View

Note the use of **@triggerBody()**, and the **runid** variable derived from
workflow().run.name.

```
{
    "definition": {
        "$schema":
"https://schema.management.azure.com/providers/Microsoft.Logic/schem
06-01/workflowdefinition.json#",
        "actions": {
            "Create_container_group": {
                "inputs": {
                    "body": {
                        "location": "@{string('eastus')}",
                        "properties": {
                            "containers": [
                                {
                                    "name":
"@{string(variables('runid'))}",
```

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9/21/20, 7:55 AM

```
                                   "properties": {
                                       "environmentVariables": [
                                           {
                                               "name":
"SOURCE_BLOB_NAME",

                                               "value":
"@triggerBody()['Name']"

                                           },
                                           {
                                               "name":
"SOURCE_BLOB_PATH",

                                               "value":
"@triggerBody()['Path']"

                                           },
                                           {
                                               "name":
"AZURE_STORAGE_CONNECTION_STRING",

                                               "value": "your-
connection-string"

                                           },
                                           {
                                               "name":
"RUNTYPE",

                                               "value":
"logic_app_process_blob"

                                           },
                                           {
                                               "name":
"TARGET_BLOB_CONTAINER",

                                               "value":
"processed"
```

```
                                                }
                                            ],
                                            "image": "cjoakim/azure-
blobs-core:latest",
                                            "resources": {
                                                "limits": {
                                                    "cpu": 1,
                                                    "memoryInGB": 2
                                                },
                                                "requests": {
                                                    "cpu": 1,
                                                    "memoryInGB": 2
                                                }
                                            }
                                        }
                                    }
                                ],
                                "osType": "Linux",
                                "restartPolicy": "Never"
                            }
                        },
                        "host": {
                            "connection": {
                                "name": "@parameters('$connections')
['aci']['connectionId']"
                            }
                        },
                        "method": "put",
                        "path":
"/subscriptions/@{encodeURIComponent('your-subscription-
id')}/resourceGroups/@{encodeURIComponent('cjoakim-
```

```
logic')}/providers/Microsoft.ContainerInstance/containerGroups/@{enc
                        "queries": {
                            "x-ms-api-version": "2017-10-01-preview"
                        }
                    },
                    "runAfter": {
                        "Initialize_variable": [
                            "Succeeded"
                        ]
                    },
                    "type": "ApiConnection"
                },
                "Delay": {
                    "inputs": {
                        "interval": {
                            "count": 1,
                            "unit": "Minute"
                        }
                    },
                    "runAfter": {
                        "Create_container_group": [
                            "Succeeded"
                        ]
                    },
                    "type": "Wait"
                },
                "Delete_container_group": {
                    "inputs": {
                        "host": {
                            "connection": {
```

```
                            "name": "@parameters('$connections')
['aci']['connectionId']"
                        }
                    },
                    "method": "delete",
                    "path":
"/subscriptions/@{encodeURIComponent('your-subscription-
id')}/resourceGroups/@{encodeURIComponent('cjoakim-
logic')}/providers/Microsoft.ContainerInstance/containerGroups/@{enc

                    "queries": {
                        "x-ms-api-version": "2017-10-01-preview"
                    }
                },
                "runAfter": {
                    "Get_logs_of_a_container": [
                        "Succeeded"
                    ]
                },
                "type": "ApiConnection"
            },
            "Get_logs_of_a_container": {
                "inputs": {
                    "host": {
                        "connection": {
                            "name": "@parameters('$connections')
['aci']['connectionId']"
                        }
                    },
                    "method": "get",
                    "path":
```

```json
"/subscriptions/@{encodeURIComponent('your-subscription-
id')}/resourceGroups/@{encodeURIComponent('cjoakim-
logic')}/providers/Microsoft.ContainerInstance/containerGroups/@{enc

                    "queries": {
                        "x-ms-api-version": "2017-10-01-preview"
                    }
                },
                "runAfter": {
                    "Delay": [
                        "Succeeded"
                    ]
                },
                "type": "ApiConnection"
            },
            "Initialize_variable": {
                "inputs": {
                    "variables": [
                        {
                            "name": "runid",
                            "type": "string",
                            "value": "@{toLower(concat('c-',
workflow().run.name))}"
                        }
                    ]
                },
                "runAfter": {},
                "type": "InitializeVariable"
            }
        },
        "contentVersion": "1.0.0.0",
```

```
            "outputs": {},
            "parameters": {
                "$connections": {
                    "defaultValue": {},
                    "type": "Object"
                }
            },
            "triggers": {
                "When_a_blob_is_added_or_modified_(properties_only)":
{
                    "inputs": {
                        "host": {
                            "connection": {
                                "name": "@parameters('$connections')
['azureblob']['connectionId']"
                            }
                        },
                        "method": "get",
                        "path":
"/datasets/default/triggers/batch/onupdatedfile",
                        "queries": {
                            "folderId": "JTJmc2ltdWxhdGlvbnM=",
                            "maxFileCount": 1
                        }
                    },
                    "metadata": {
                        "JTJmc2ltdWxhdGlvbnM=": "/simulations"
                    },
                    "recurrence": {
                        "frequency": "Minute",
                        "interval": 1
```

```
                },
                "splitOn": "@triggerBody()",
                "type": "ApiConnection"
            }
        }
    },
    "parameters": {
        "$connections": {
            "value": {
                "aci": {
                    "connectionId": "/subscriptions/your-
subscription-id/resourceGroups/cjoakim-
logic/providers/Microsoft.Web/connections/aci",
                    "connectionName": "aci",
                    "id": "/subscriptions/your-subscription-
id/providers/Microsoft.Web/locations/eastus/managedApis/aci"
                },
                "azureblob": {
                    "connectionId": "/subscriptions/your-
subscription-id/resourceGroups/cjoakim-
logic/providers/Microsoft.Web/connections/azureblob",
                    "connectionName": "azureblob",
                    "id": "/subscriptions/your-subscription-
id/providers/Microsoft.Web/locations/eastus/managedApis/azureblob"

                }
            }
        }
    }
}
```

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9/21/20, 7:55 AM

Testing the Container

Compile and containerize the DotNet Core code:

```
$ ./containerize.sh
```

Use **Docker Compose** to simulate the execution of the ACI in the Logic App by passing it environment variables. See file **docker-compose.yml**.

```
$ /.compose.sh up
```

Once testing is completed, upload the contaner to your **Azure Container Registry (ACR)**. Note, this sample project uses **DockerHub** instead of ACR, so that others can easily recreate this project in their own Azure subscriptions.

System Testing

A complete system test includes:

- Execute **./delete_blobs.sh** to delete any remnant source/simulation blobs
- Execute **./download_blobs.sh** to delete any remnant target/calculated blobs
- Remove the files in the **tmp/** directory

- Execute **./populate_blobs.sh** to upload randomized source/simulation blobs

- Observe the state of the two blob containers with **Azure Storage Explorer**

- Observe the **Run History** (image below) of the Logic App in Azure Portal

- Execute **./download_blobs.sh** to download the new target/calculated blobs

Links

- https://docs.microsoft.com/en-us/azure/storage/blobs/storage-quickstart-

blobs-dotnet

- https://www.klaine.net/example-azure-container-instances-with-logic-apps/

- https://www.nuget.org/packages/Joakimsoftware.M26/

- https://github.com/cjoakim/m26-cs

- https://docs.microsoft.com/en-us/dotnet/api/azure.storage.blobs?
view=azure-dotnet

Pricing

- https://azure.microsoft.com/en-us/pricing/details/logic-apps/

- https://azure.microsoft.com/en-us/pricing/details/container-instances/

- https://azure.microsoft.com/en-us/pricing/details/storage/blobs/