Push and pull an Image to Azure Container Registry

Overview

Platform:	Azure
Owner of this SOP:	Fully Managed
Cloud Services:	Fully Managed POD B
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Problem

An Azure container registry stores and manages private container images. While working on the containerized applications, it is often required to pull/push images to/from your private repository. There are various ways to carry out the task. In this page, we will walk you through the way to pull/ push images to/from Azure Container Registry using Azure CLI.

Pre-requisites

- Azure container registry - Create a container registry. Cloud Factory provides dedicated component to create Azure container registry.
- Azure Command Line Interface
- Docker CLI
- Proper Privileges to authenticate to the registry.

Procedure

Push Image to Azure Container Registry

Step:1

Login to the Azure Container registry with proper privileges. Click on the link to know various ways to authenticate to registry https://learn.microsoft.com/en-us/azure/container-registry/container-registry-authentication?tabs=azure-cli

Step:2

If image already exists in your local, tag the image with the with the fully qualified path to your registry. In the below example, we have tagged an existing image named "hello-world" with the registry fully qualified path as below:

```
registry-login-server/namespace/repo:tag
```

If needed, sub-namespaces can be used as below:

```
registry-login-server/namespace/sub-namespaces/repo:tag
```

Example:

```
[root@MAUE10ETP0D764 ~]# docker tag hello-world:latest itpodbregistry.azurecr.io/hello-world:v1
```

Step:3

Push the image to Azure Container Registry.

```
docker push registry-login-server/namespace/repo:tag
```

Example:

```
[root@MAUE10ETP0D764 ~]# docker push itpodbregistry.azurecr.io/hello-world:v1
The push refers to repository [itpodbregistry.azurecr.io/hello-world]
e07ee1baac5f: Pushed
v1: digest: sha256:f54a58bc1aac5ea1a25d796ae155dc228b3f0e11d046ae276b39c4bf2f13d8c4 size: 525
```

Navigate to Azure Portal-->Container Registry-->Repositories to see the pushed image:
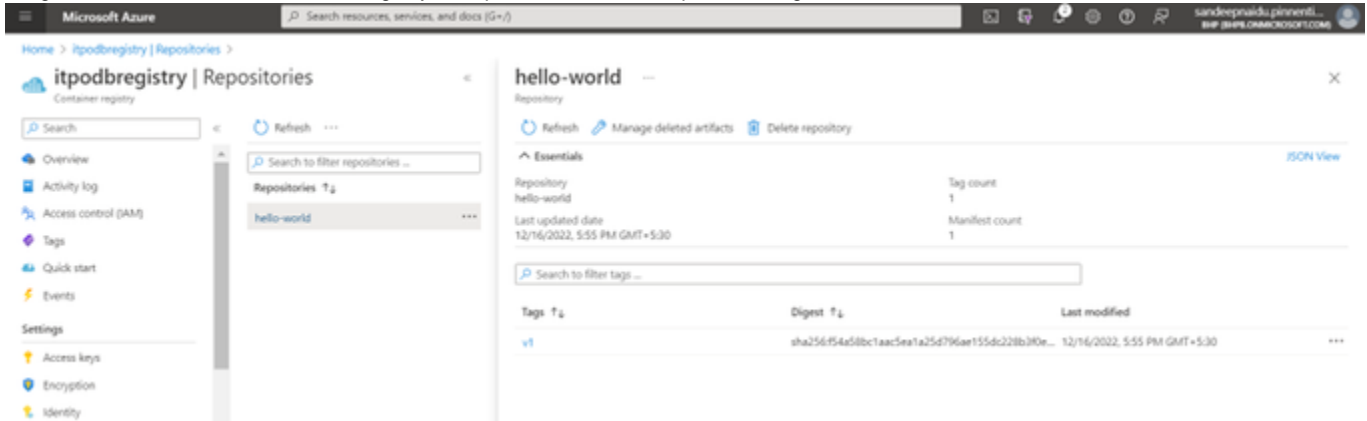
Pull Image from Azure Container Registry

Use the docker pull command to pull the image from your registry.

```
[root@MAUE10ETP0D764 ~]# docker image ls
REPOSITORY                              TAG       IMAGE ID       CREATED         SIZE
hello-world                             latest    feb5d9fea6a5   14 months ago   13.3kB
itpodbregistry.azurecr.io               v1        feb5d9fea6a5   14 months ago   13.3kB
itpodbregistry.azurecr.io/hello-world   v1        feb5d9fea6a5   14 months ago   13.3kB
[root@MAUE10ETP0D764 ~]# docker pull itpodbregistry.azurecr.io/hello-world:v1
v1: Pulling from hello-world
Digest: sha256:f54a58bc1aac5ea1a25d796ae155dc228b3f0e11d046ae276b39c4bf2f13d8c4
Status: Image is up to date for itpodbregistry.azurecr.io/hello-world:v1
itpodbregistry.azurecr.io/hello-world:v1
[root@MAUE10ETP0D764 ~]#
```

Build Images without Docker Installation

In some cases where docker is not installed on local machine or in CI/CD agents, images can be build using below command.

```
az acr build -t registry-login-server/namespace/repo:tag  --registry
Registryname .
```

Example:

In below command, we have tagged the image with registry FQDN and provided the registry name. Note the "." at the end which refers to build context.

```
az acr build -t itpodbregistry.azurecr.io/helloworld:v1  -f ./scripts/Dockerfile -r itpodbregistry .
```

```
206  2022/11/25 13:25:16 Successfully pushed image: itpodbregistry.azurecr.io/he
     lloworld:v1
207  2022/11/25 13:25:16 Step ID: build marked as successful (elapsed time in se
     conds: 34.143481)
```

```
213  - image:
214      registry: itpodbregistry.azurecr.io
215      repository: helloworld
216      tag: v1
217      digest: sha256:3e6f0d589fd3a4c464eca8f231dca4cc53443044bf1b751e5a1face8
     17f77310
218    runtime-dependency:
219      registry: registry.hub.docker.com
220      repository: library/python
221      tag: "3"
222      digest: sha256:10fc14aa6ae69f69e4c953cffd9b0964843d8c163950491d2138af89
     1377bc1d
223    git: {}
224  Run ID: cr4 was successful after 57s
```

Import Image to Azure Container Registry

Imports an image to an Azure Container Registry from another Container Registry. Import removes the need to docker pull, docker tag, docker push.

```
az acr import --name --source --image
```

Example:

```
az acr import --name itpodbregistry --source mcr.microsoft.com/azuredocs/aci-tutorial-sidecar --image aci-
tutorial-sidecar
```

Note: It is not recommended to use public image in production environments. This POC is done in test environment to explain the way to import images from other registries.

Related articles

- https://learn.microsoft.com/en-us/azure/container-registry/container-registry-authentication?tabs=azure-cli