AWS ECR to ECR Migration

Moving ECR images from one region to another region.

1. First we need to have a Linux instance on local or AWS.
2. Login to Linux way SSH.
3. Install required packages.

   apt-get or yum update

   apt-get or yum install awscli -y jq -y

   aws configure # fill out with you AWS credentials and region

   apt-get or yum docker.io

4. Execute below command by changing region value with respective region in highlighted field, using this will get login key in encrypted format.

   aws ecr get-login --no-include-email --region **regionA**

   aws ecr get-login --no-include-email --region **regionB**

5. You will get output of above commands in below format.

6. Create repositories in ECR for desired region where images will be pushed, you can do it manually or use following command:

   - Using AWS GUI
   - Using command line

   aws ecr create-repository --repository-name project-a/nginx-web-app

7. To have same set up repositories in both regions use below command.

for repo in `aws ecr --region=**regionA** describe-repositories | jq -r 'map(.[] | .repositoryName ) | join(" ")'`; do echo `aws ecr --region **regionB** creat e-repository --repository-name $repo`;done

(Replace regionA and regionB values with respective region names)

8. Run following query, it will get images, tags etc and automatically pull/tag/push images to new repository in different region (replace xxxx with you AWS account IDs).

for repo in `aws ecr --region=regionA describe-repositories | jq -r 'map(.[] | .repositoryName ) | join(" ")'`; do for image in `aws ecr --region regionA list-images --repository-name $repo | jq -r 'map(.[] | .imageTag) | join(" ")'`; do docker pull **xxxxxxxxxxx**.dkr.ecr.regionA.amazonaws.com/$repo:$i mage; docker tag **xxxxxxxxxxx**.dkr.ecr.regionA.amazonaws.com/$repo:$image **xxxxxxxxxxx**.dkr.ecr.regionB.amazonaws.com/$repo:$image; docker push **xxxxxxxxxxx**.dkr.ecr.regionB.amazonaws.com/$repo:$image; done; done

(Replace regionA, regionB with different region names and replace XXX value with AWS account ID)

Moving ECR images from one account to another account.

1. Login to two EC2 instances with different different accounts and execute below command on both instances.(replace region value)

   aws ecr get-login --no-include-email --region **region**

2. Copy paste output of both commands on different different ec2 instances(paste instanceA output on instanceB and paste instanceB output on instanceA.

3. Create repositories in ECR for desired region where images will be pushed, you can do it manually or use following command:

- Using AWS GUI
- Using command line

CMD Line: aws ecr create-repository --repository-name project-a/nginx-web-app

4. We don't have option/commands to create same set of(bulk) repositories in different account.

Here first we need to create repository then need to push images.

aws ecr create-repository --repository-name name

5. Run following query, it will get images, tags etc and automatically pull/tag/push images to new repository in different region (replace xxxx with you AWS account IDs).

for repo in `aws ecr --region=**regionA** describe-repositories | jq -r 'map(.[] | .repositoryName ) | join(" ")'`; do for image in `aws ecr --region **regionA** list-images --repository-name $repo | jq -r 'map(.[] | .imageTag) | join(" ")'`; do docker pull **xxxxxxxxxxxA**.dkr.ecr.**regionA**.amazonaws.com/$repo:$image; docker tag **xxxxxxxxxxxA**.dkr.ecr.regionA.amazonaws.com/$repo:$image **xxxxxxxxxxxB**.dkr.ecr.**regionB**.amazonaws.com/$repo:$image; docker push **xxxxxxxxxxxB**.dkr.ecr. **regionB**.amazonaws.com/$repo:$image; done; done

6. Replace regionA and regionB with different region names

7. Replace xxxxxxxxxxA and xxxxxxxxxxB with different different account IDs.

Migration of docker images from local system to AWS ECR.

1. Install docker on local system.

apt or yum install docker

2. Pull an image from docker registry and check image details by filtering.

docker pull hello-world

docker images --filter reference=hello-world

3. Tag a name to docker image.(repleace aws_account_ID)

docker tag hello-world **aws_account_id**.dkr.ecr.**region**.amazonaws.com/hello-repository

4. Configure aws CLI and execute below commands to create repository (you may generate this by login to ec2 instance or local system by configuring AWS CLI).

aws ecr create-repository --repository-name hello-repository --region **region**

5. Execute below commands to generate key for login purpose on container/EC2.

aws ecr get-login --no-include-email --region **region**

6. Copy and paste above command output on local server from where we want to push the images.

7. Execute below commands to push the image.

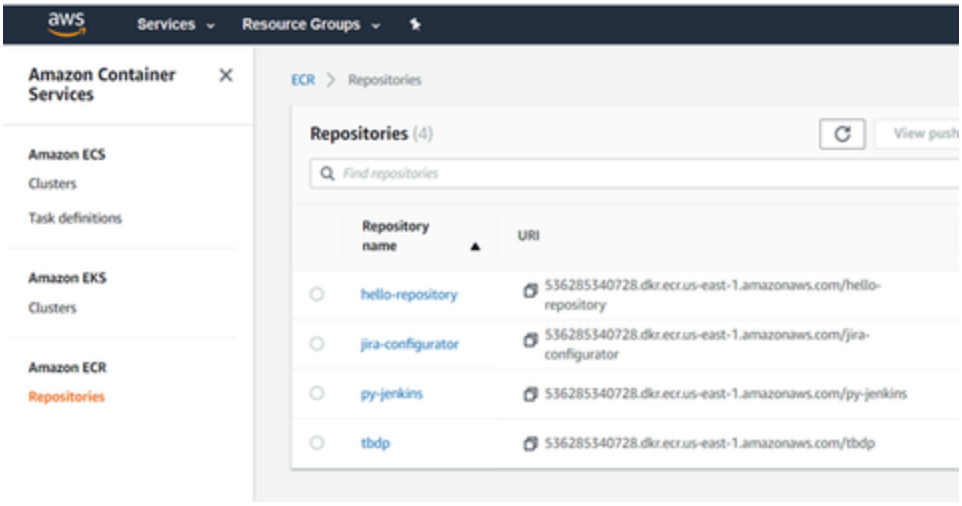
docker push **aws_account_id**.dkr.ecr.**region**.amazonaws.com/hello-repository

8. Execute below command to pull the image from ECR.

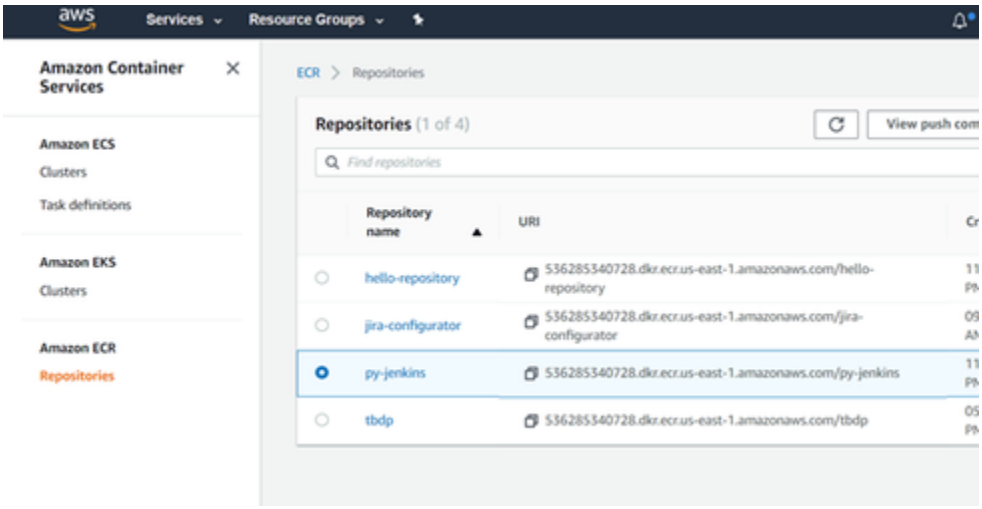
docker pull aws_account_id.dkr.ecr.**region**.amazonaws.com/hello-repository

Before pulling an image from AWS ECR need to give permission to ECR:

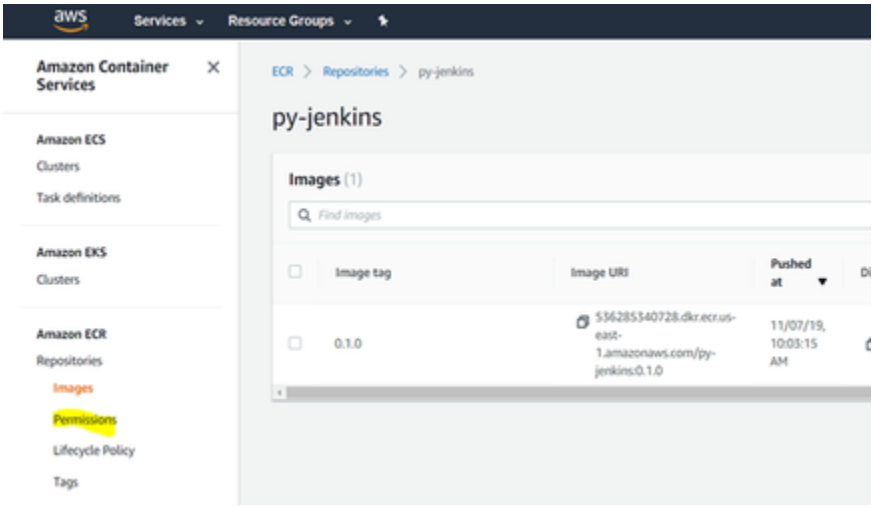
1. Login to AWS.
2. Go to ECR and click on repositories



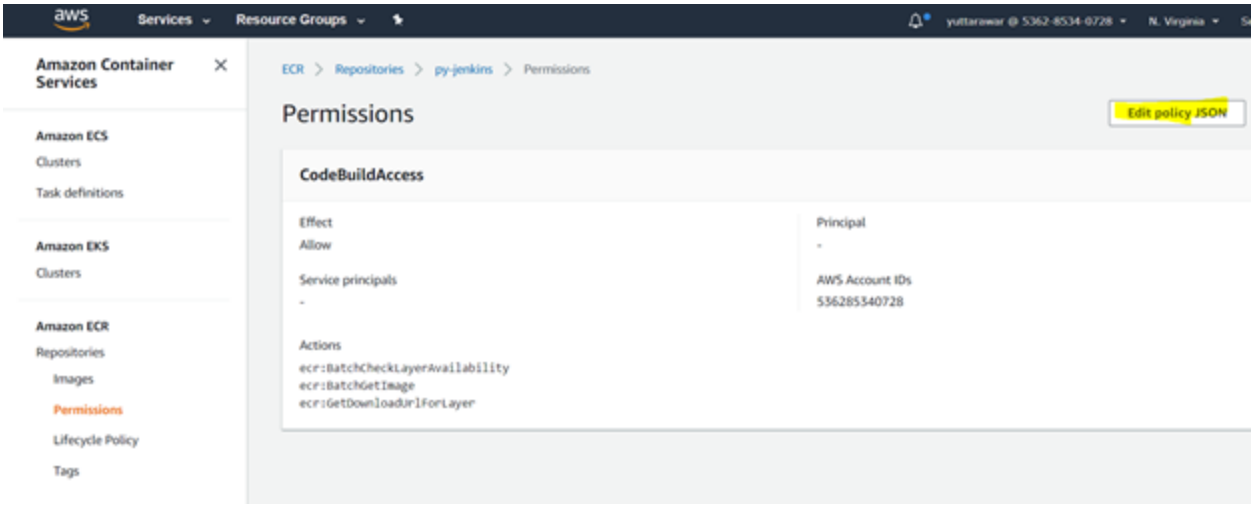
3. Select and click on specific repository



4. Go to permission tab.



5. Click on edit policy json.



6. Copy and paste below json syntax and click on save.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "CodeBuildAccess",
      "Effect": "Allow",
      "Principal": {
        "AWS": "AWS account ID"
      },
      "Action": [
        "ecr:GetDownloadUrlForLayer",
        "ecr:BatchGetImage",
        "ecr:BatchCheckLayerAvailability"
      ]
    }
  ]
}
```

Moving images between S3 and EC2 Instances:

1. Login to instance

2. Execute below commands to save docker images to tar files.

```
$ docker save busybox > busybox.tar
$ ls -sh busybox.tar
2.7M busybox.tar
$ docker save --output busybox.tar busybox
$ ls -sh busybox.tar
```

2.7M busybox.tar

$ docker save -o fedora-all.tar fedora

$ docker save -o fedora-latest.tar fedora:latest

3. Install AWS cli

apt-get or yum install awscli

4. Obtain AWS S3 credentials for the user account. Go to Identity and Access Management at https://console.aws.amazon.com/iam/home. Select your username, go to 'User Actions', and then go to 'Manage Access Keys' and create and download new access key. It should look like:

User Name Access Key Id Secret Access Key

<username> <key id> <secret key>

5. Run aws configure and enter above credentials. For region, use region.

6. Check that you have access to s3 bucket with

aws s3 ls

7. Copy entire directory. I recommend using sync rather than cp. Note this part tends to hang sometimes, so just ctrl+c and run it again. By sync, the process will resume.

aws s3 sync s3://my-s3-bucket local_dir/

OR

aws s3 cp s3://uttarwar/images . –recursive

8. Save images to S3 and download (using wget) to your ec2 when required by providing permission to S3 objects.

To copy data from EBS to S3:

1. Create bucket using the online console https://console.aws.amazon.com/s3/home?region=us-east-1, e.g. 'recoli-c321-data' (use region us-east-1 for all of our stuff)

2. Copy data from EBS to S3

aws s3 cp --recursive local_dir/ s3://my-s3-bucket/anyfolder

3. You can also use sync in this direction, which is useful for copying to and from S3 simultaneously (instance -> S3 -> instance).

aws s3 sync local_dir/ s3://my-s3-bucket/anyfolder

Here we have four options to save ECR images

1. Same AWS account but different regions.
2. Different account same regions.
3. Different account and different regions.
4. Save to AWS EC2.
5. Save to S3.