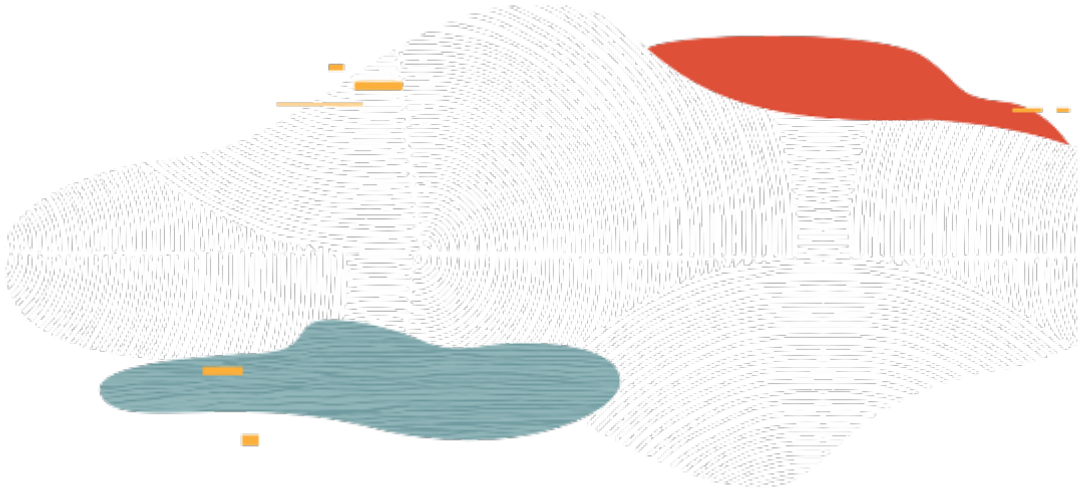

OCI Registry Service

Level 100

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Oracle Cloud Infrastructure
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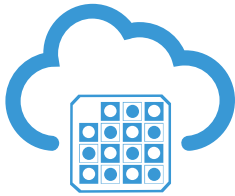
Objectives

After completing this lesson, you should be able to:

- Use the OCI Registry Service
- Create Policy Requirements for OCIR
- Manage Repos using OCIR
- Pull an image from OCIR with OKE
- Set Global image retention policies

Introducing Oracle Cloud Infrastructure Registry - OCIR



What is It?

- A high availability Docker v2 container registry service
- Stores Docker Images in Private or Public Repositories.
- Runs as a fully managed service on Oracle Cloud Infrastructure.

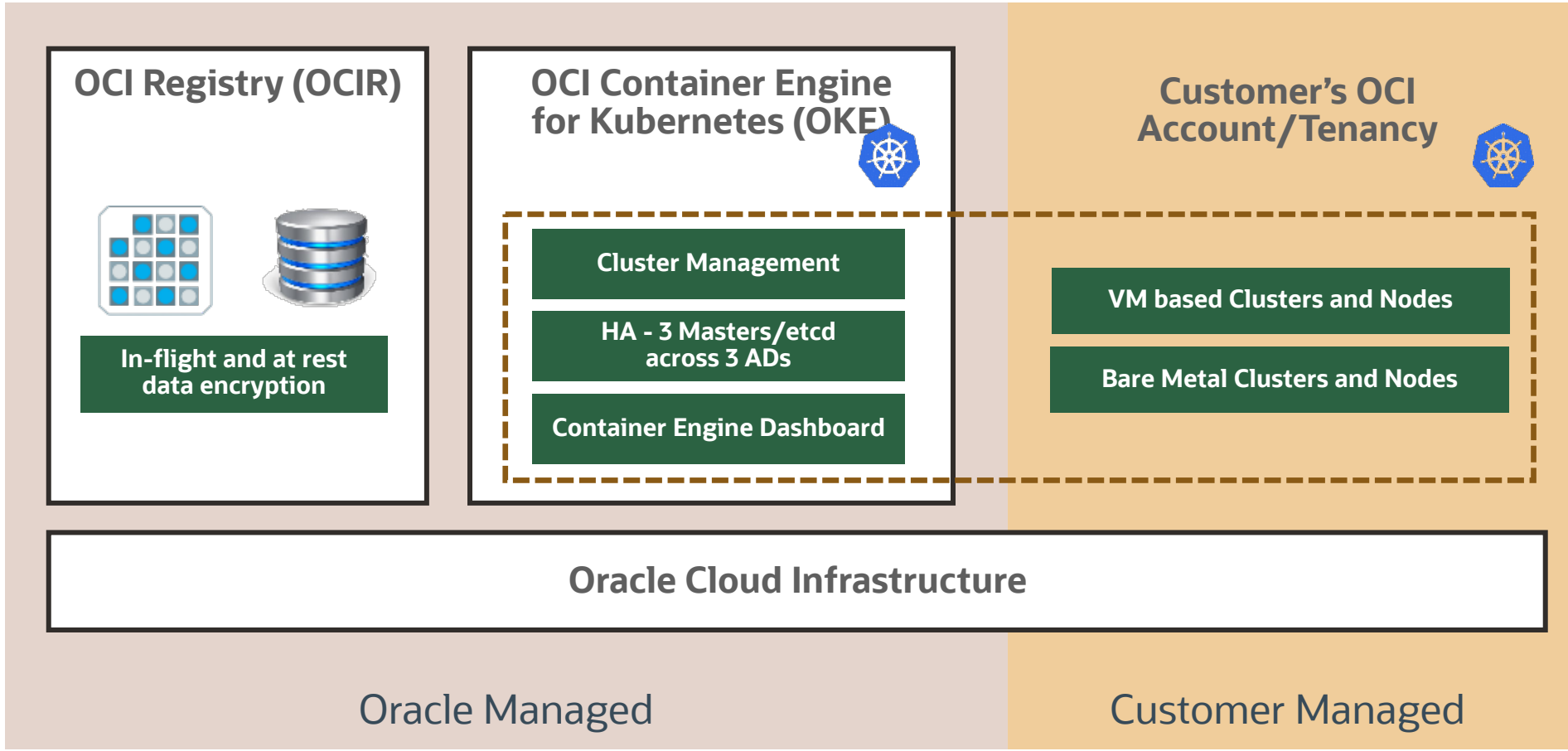
What Problems Does it Solve?

- Without a registry it is hard for Development teams to maintain a consistent set of Docker images for their containerized applications
- Without a managed registry it is hard to enforce access rights and security policies for images
- It is hard to find right images and have them available in the region of deployment

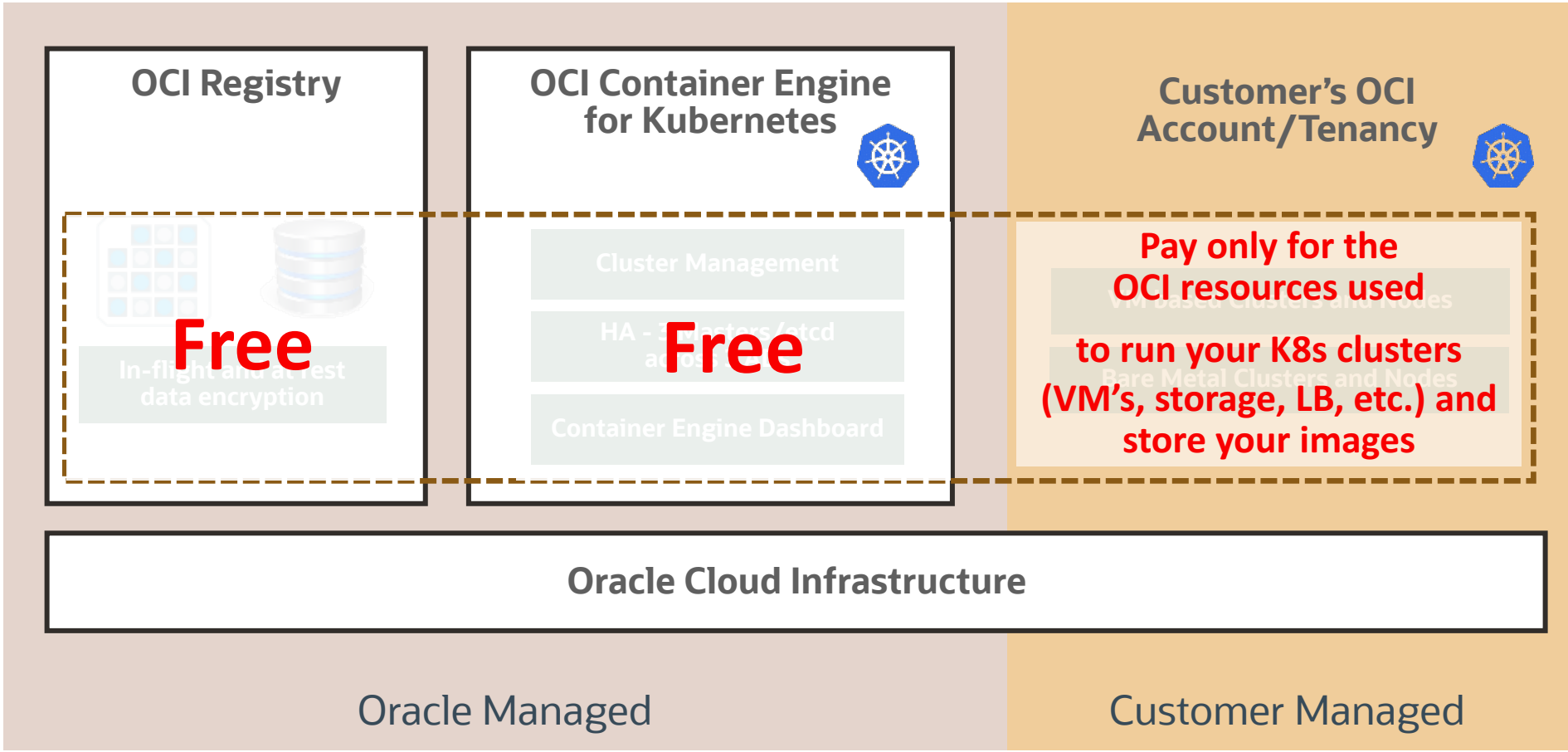
Key Benefits

- Full integration with Container Engine for Kubernetes (OKE)
- Registries are private by default, but can be made public by an admin
- Co-located regionally with Container Engine for low latency Docker image deploys
- Leverages OCI for high performance, low latency and high availability

Working with OKE and OCIR on OCI



OKE/OCIR Pricing and Packaging



Pre-requisites for OCIR

- To use registry service, user is either a part of the admin group or part of a group to which a policy grants the appropriate permissions

  `allow group acme-viewers to inspect repos in tenancy` – Ability to see a list of all repositories in Oracle Cloud Infrastructure Registry belonging to the tenancy

  `allow group acme-managers to manage repos in tenancy` – Ability to perform any operation on any repository in Oracle Cloud Infrastructure Registry that belongs to the tenancy (Pull an image, push an image, create/delete repos etc.)

  Note: repos are tenancy-level resources, policies controlling access to them need to go into the root compartment (i.e., the tenancy).

- User needs to have an OCI **username** and **auth token** before being able to push/pull an image.

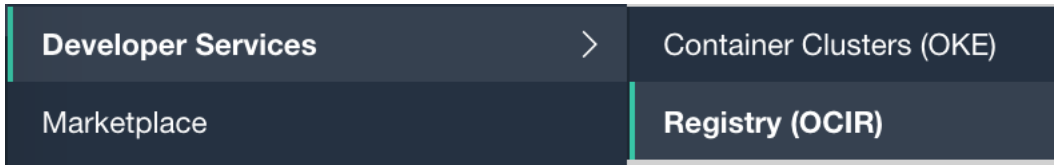
OCIR Repositories

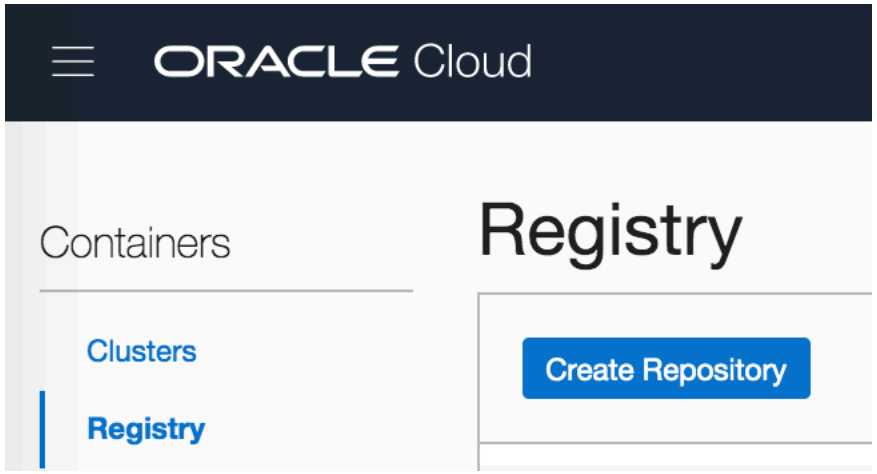
- Repositories can be private or public.
- Any user with internet access and knowledge of the appropriate URL can pull images from a public repository in Oracle Cloud Infrastructure Registry.
- To Create a Repository via Console

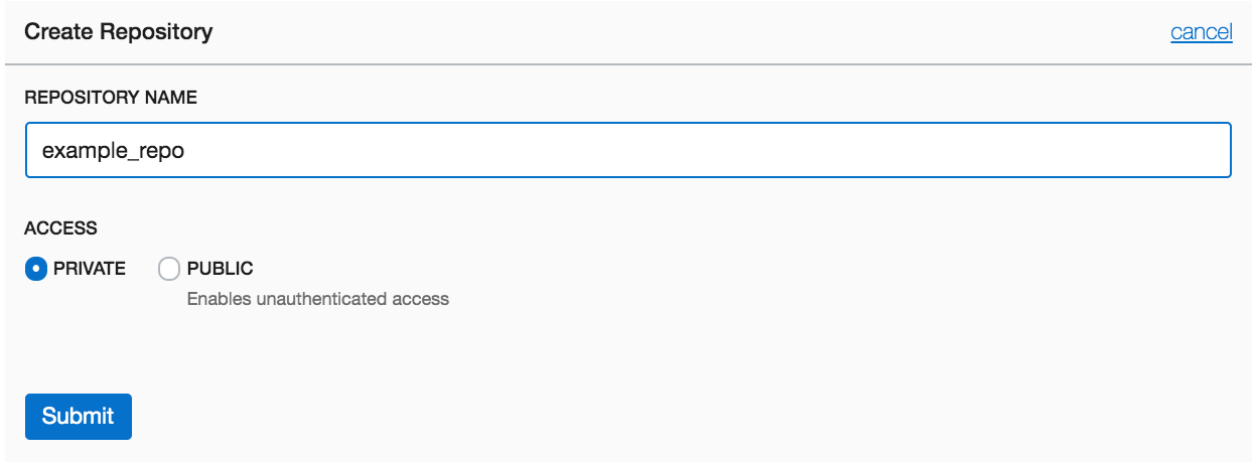
  Containers → Registry → Create Repository

  Repository Name

  Public or Private







Push/Pull images from OCIR

Region Code	Region Name
phx	Phoenix
iad	Ashburn
fra	Frankfurt
lhr	London
icn	Seoul
nrt	Tokyo
yyz	Toronto

- You use Docker CLI to push/pull images to repos in OCI
- Create a Auth Token for User and copy it
- Login into OCIR

```
docker login <region-code>.ocir.io
       <tenancy_namespace>/<username>
       Auth-token
```

What is Tenancy namespace

- Find images in your local repository to be pushed to OCIR and tag in the format

```
<region-code>.ocir.io/<tenancy-namespace>/<repos-name>/<image-name>:<tag>
docker tag 9f1191b287da iad.ocir.io/jamalarif/testing/tomcat:1.2
```

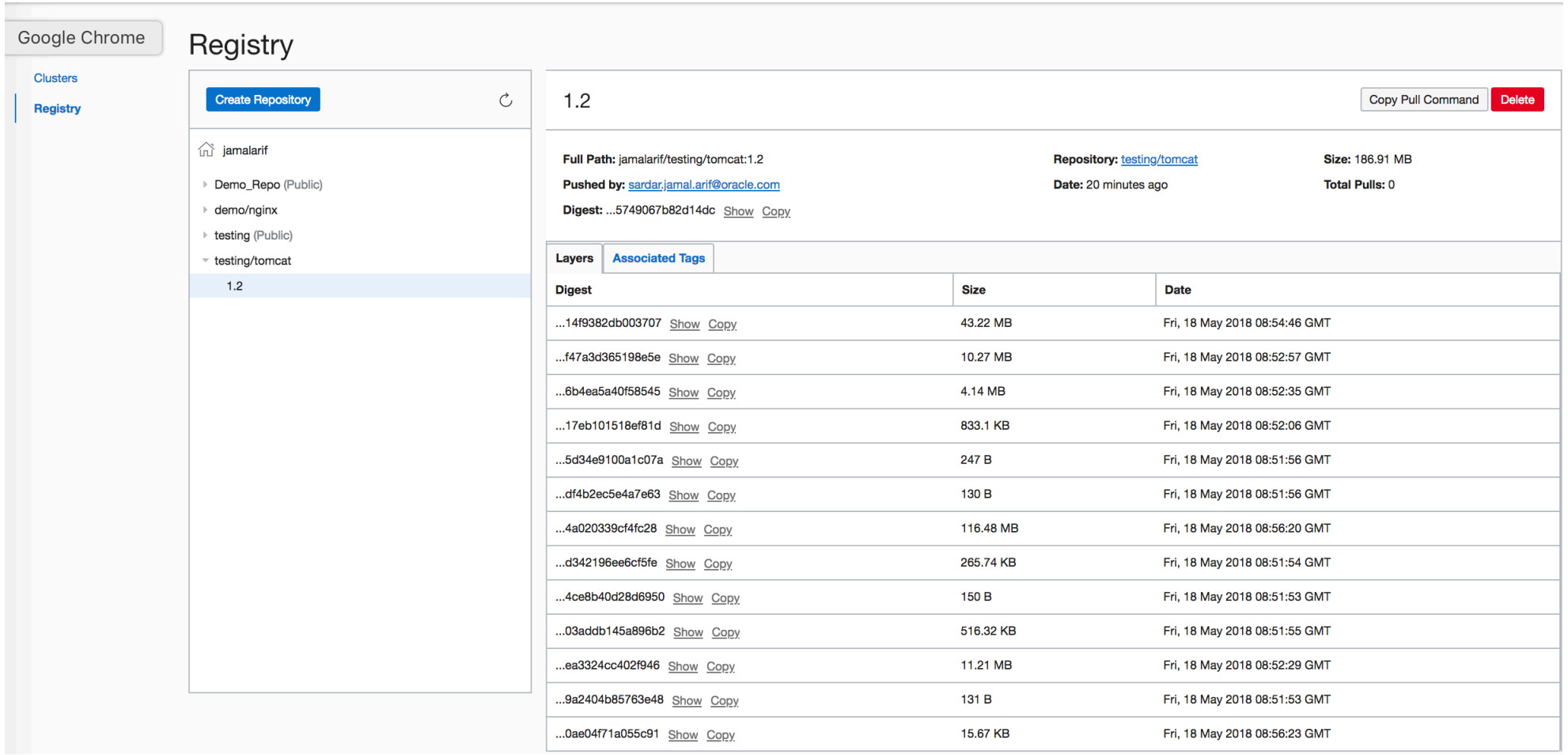
- Push your tagged image to OCIR

```
docker push iad.ocir.io/jamalarif/testing/tomcat
```

- Similarly images can be pulled using docker pull

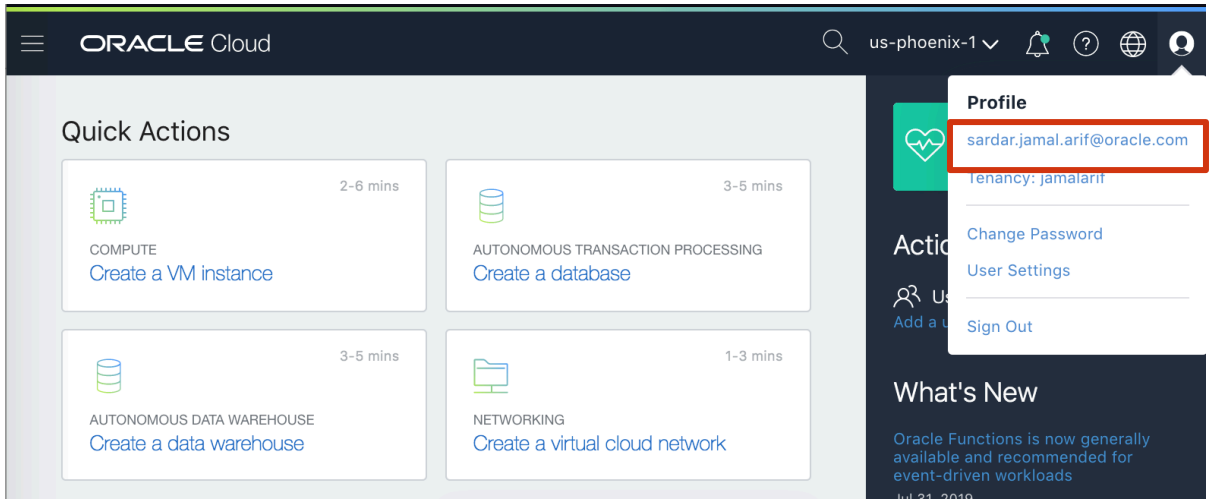
```
docker pull <region-code>.ocir.io/<tenancy-namespace>/<repos-name>/<image-
    name>:<tag>
docker pull iad.ocir.io/jamalarif/testing/tomcat:1.2
```

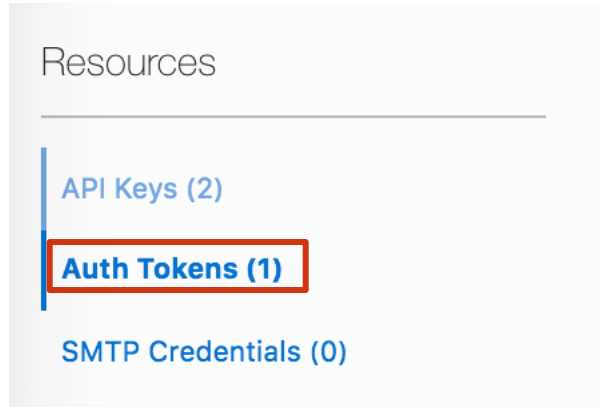
OCIR Image Layers

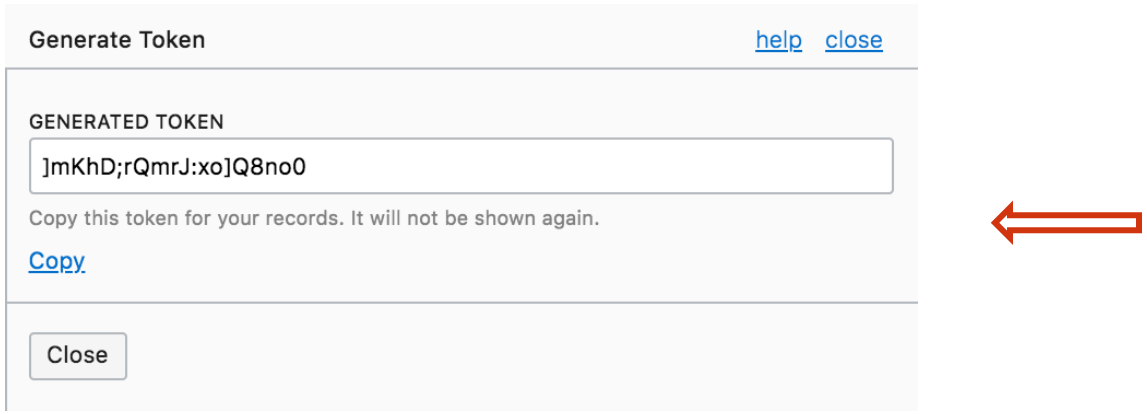


Pulling images from Registry for Kubernetes Deployments

Step 1: Create an Auth Token







Pulling images from Registry for Kubernetes Deployments

Step 2: Create docker registry secret and use Auth Token

- Create a Docker registry secret, containing the Oracle Cloud Infrastructure credentials to use when pulling the image.

```
kubectl create secret docker-registry <secret-name> --docker-
  server=<region-code>.ocir.io --docker-username='<tenancy-
  namespace>/<oci-username>' --docker-password='<oci-auth-token>' --
  docker-email='<email-address>'
```

Pulling images from Registry for Kubernetes Deployments (2)

- Specify the image to pull from Oracle Cloud Infrastructure Registry, including the repository location and the Docker registry secret to use, in the application's manifest file.

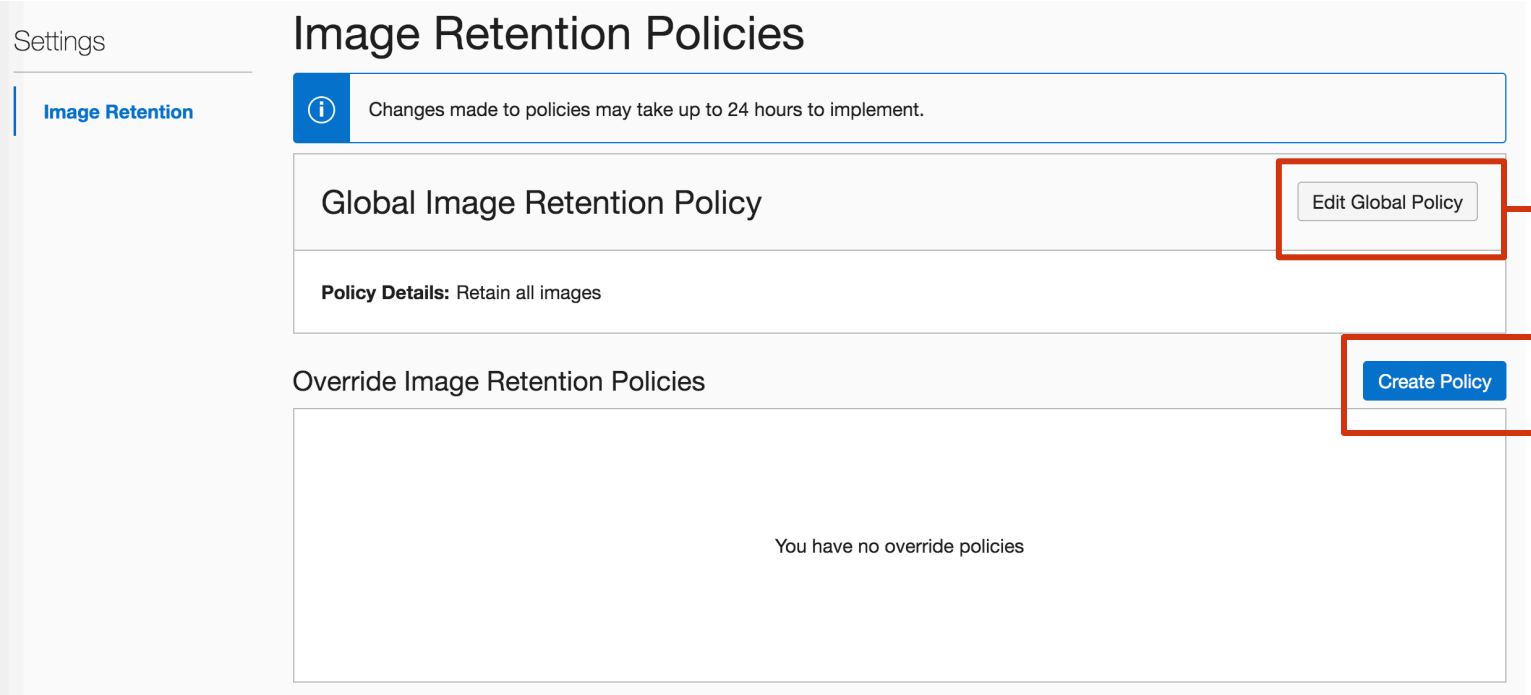
```
apiVersion: v1
kind: Pod
metadata:
  name: ngnix-image
spec:
  containers:
    - name: ngnix
      image: iad.ocir.io/jamalarif/testing/nginx:1.1
      imagePullPolicy: Always
      ports:
      - name: nginx
        containerPort: 8080
        protocol: TCP
  imagePullSecrets:
    - name: ocirsecret
```

OCIR Image Retention Policies

- Set up image retention policies to automatically delete images that meet particular selection criteria. Following rules can be applied
  - images that have not been pulled for a certain number of days
  - images that have not been tagged for a certain number of days
  - images that have not been given particular Docker tags specified as exempt from automatic deletion
- **Hourly process** checks images against the selection criteria and deletes images accordingly.
- A global Image retention policy pre-exists with default selection criteria to retain all images.
- Users can edit global image retention policy or create their own custom policy.
- Policies are regional and applied on repository level.
- Repos can only be part of one image retention policy at a time
- Once the policy is created, first time it can take several hours to take effect known as cooling period to avoid unintentional deletion of images.

OCIR Image Retention Policies (2)

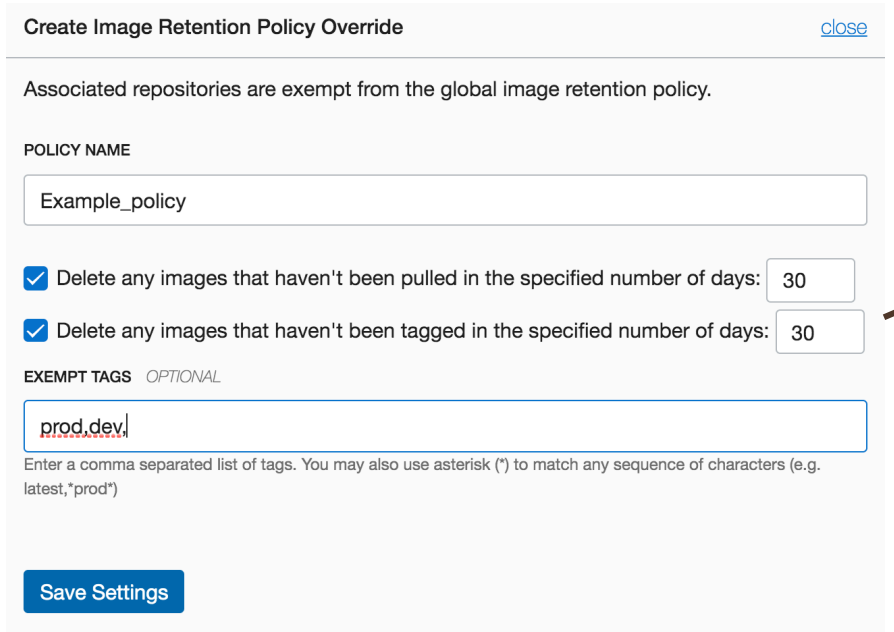
- On OCIR Home page, Click **Settings**, and then select **Image retention policies**.



Edit the Global Image Retention Policy

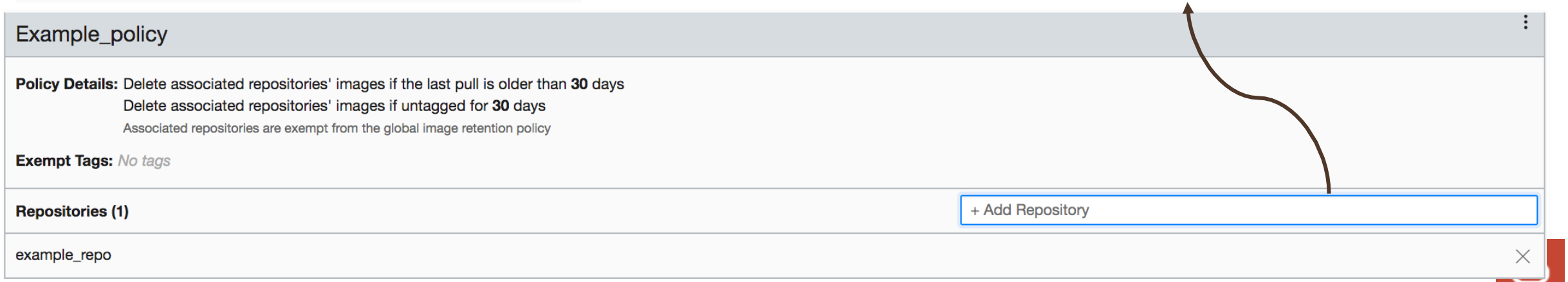
Create a new custom image retention policy

OCIR Image Retention Policies (3)



- Select the criteria and number of days for each policy
- Provide image tag to prevent images from being deleted

- Once the policy is created, add repositories by clicking on + Add repository
- Remove the repos from the policy by removing them



Demo

http://bit.ly/2XOQbuC

Summary

- Use the OCI Registry Service
- Create Policy Requirements for OCIR
- Manage Repos using OCIR
- Pull an image from OCIR with OKE
- Set Global image retention policies

ORACLE

Oracle Cloud always free tier:
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