



ORACLE

OCI Registry Service

Level 100

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Oracle Cloud Infrastructure

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Safe harbor statement

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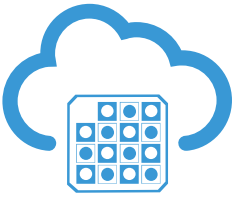
The development, release, timing, and pricing of any features or functionality described for Oracle's products may change and remains at the sole discretion of Oracle Corporation.

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.

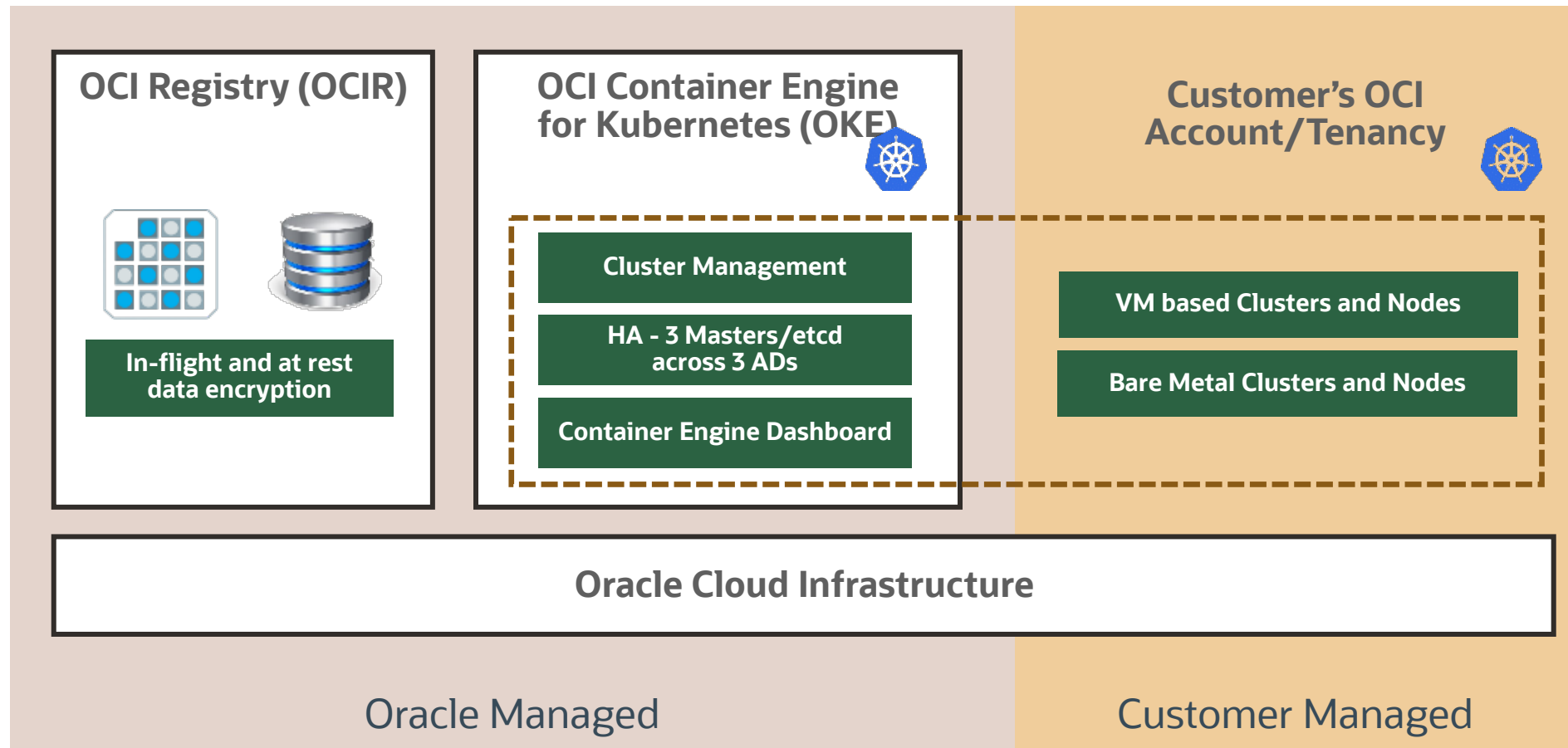
What Problems Does it Solve?

- 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

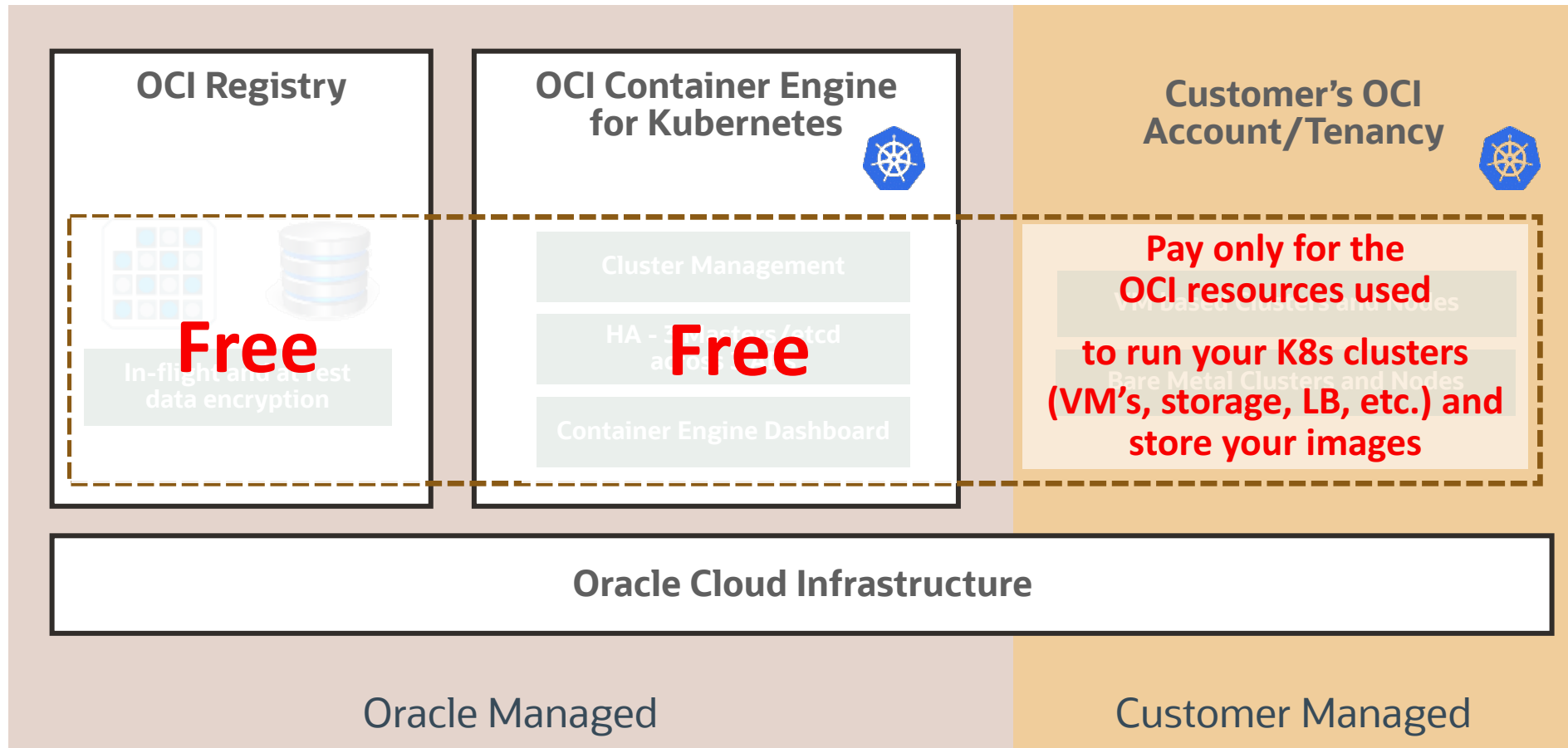
Key Benefits

- 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

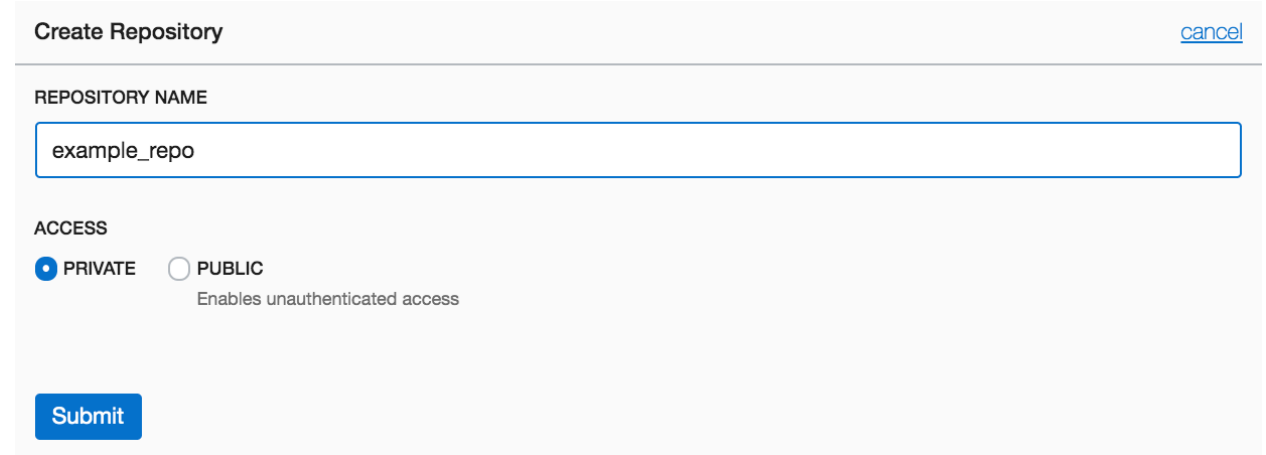
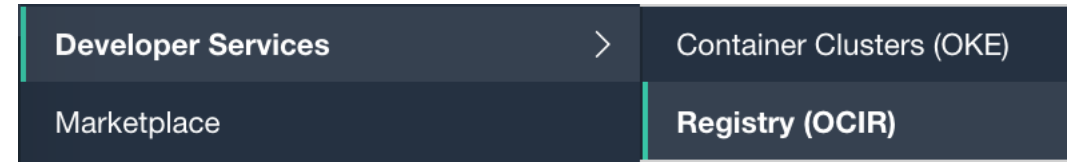
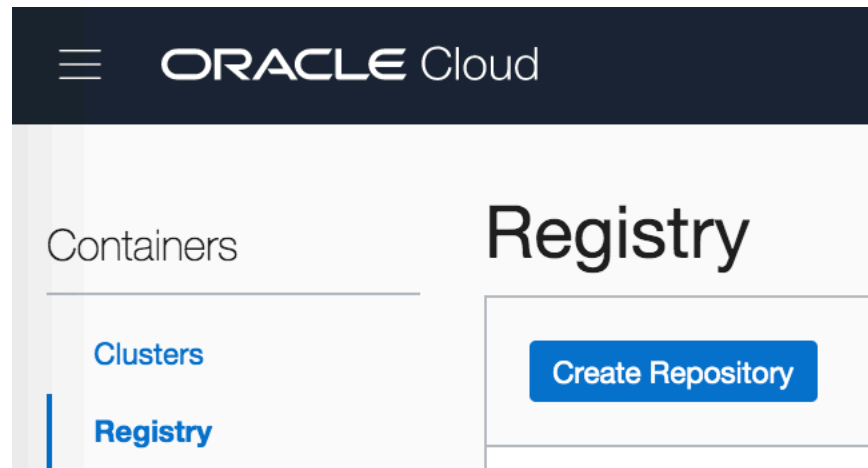


Pre-requisites for OCIR

- 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

A screenshot of the 'Create Repository' form in the Oracle Cloud console. The form has a title 'Create Repository' and a 'cancel' link. It contains a 'REPOSITORY NAME' field with the value 'example_repo'. Below this, there is an 'ACCESS' section with two radio buttons: 'PRIVATE' (selected) and 'PUBLIC' (with a note 'Enables unauthenticated access'). At the bottom of the form is a blue 'Submit' button.

Push/Pull images from OCIR

- 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
```

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

OCIR Image Layers

Google Chrome

Registry

Clusters

Registry

Create Repository

jamalarif

- Demo_Repo (Public)
- demo/nginx
- testing (Public)
- testing/tomcat
 - 1.2

1.2

Copy Pull CommandDelete

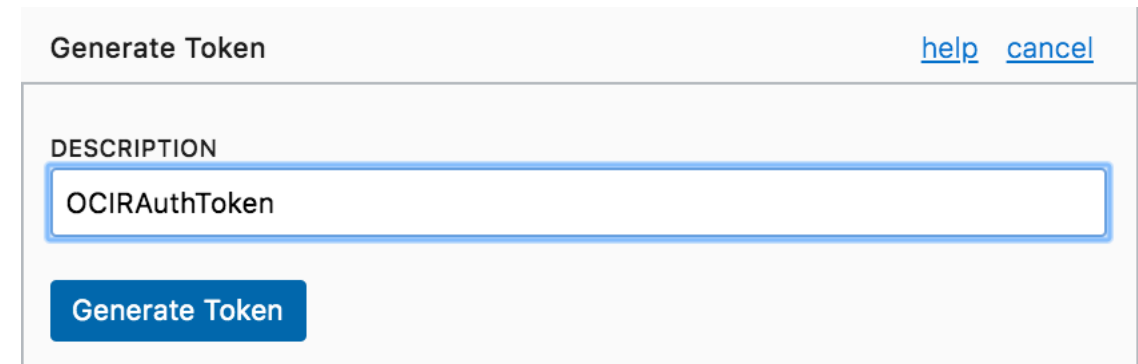
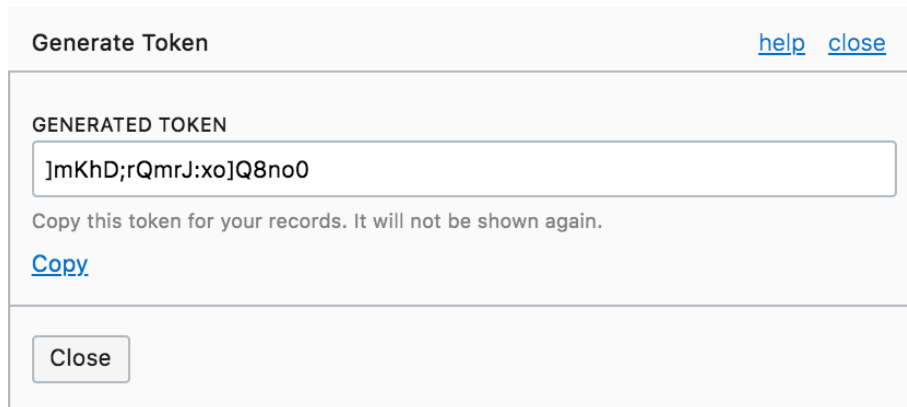
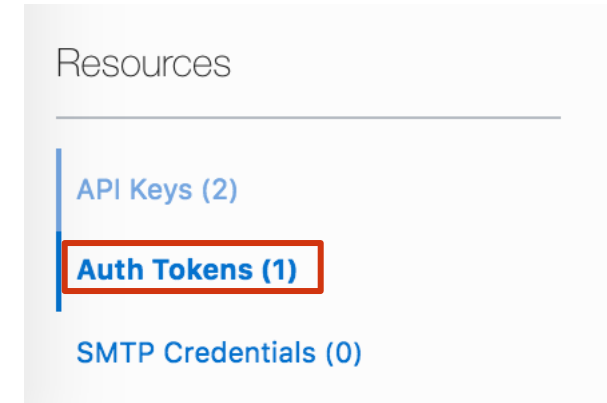
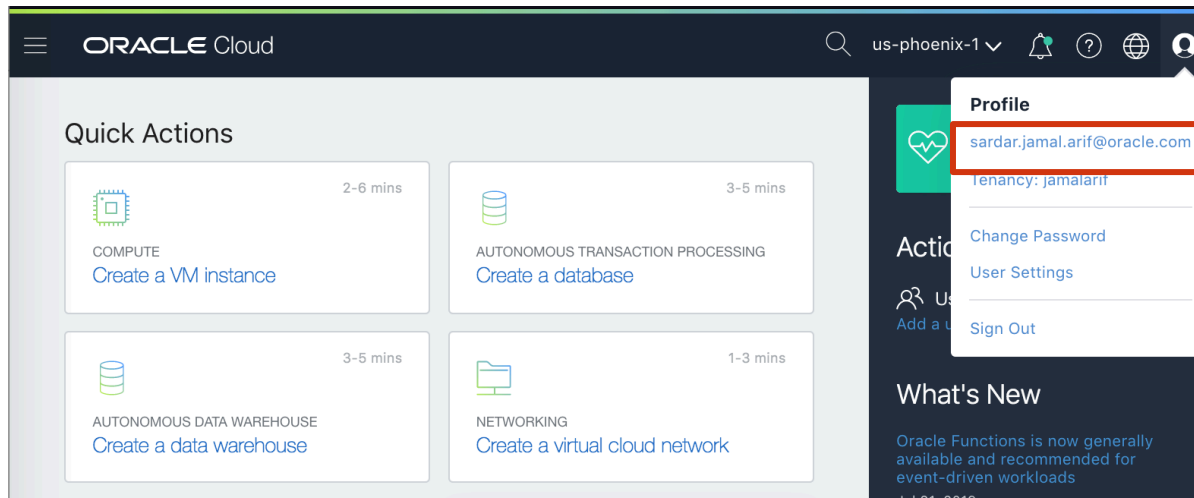
Full Path: jamalarif/testing/tomcat:1.2Repository: [testing/tomcat](#)Size: 186.91 MBPushed by: [sardar.jamal.arif@oracle.com](#)Date: 20 minutes agoTotal Pulls: 0Digest: ...5749067b82d14dc [Show](#) [Copy](#)

LayersAssociated Tags

Digest	Size	Date
...14f9382db003707 Show Copy	43.22 MB	Fri, 18 May 2018 08:54:46 GMT
...f47a3d365198e5e Show Copy	10.27 MB	Fri, 18 May 2018 08:52:57 GMT
...6b4ea5a40f58545 Show Copy	4.14 MB	Fri, 18 May 2018 08:52:35 GMT
...17eb101518ef81d Show Copy	833.1 KB	Fri, 18 May 2018 08:52:06 GMT
...5d34e9100a1c07a Show Copy	247 B	Fri, 18 May 2018 08:51:56 GMT
...df4b2ec5e4a7e63 Show Copy	130 B	Fri, 18 May 2018 08:51:56 GMT
...4a020339cf4fc28 Show Copy	116.48 MB	Fri, 18 May 2018 08:56:20 GMT
...d342196ee6cf5fe Show Copy	265.74 KB	Fri, 18 May 2018 08:51:54 GMT
...4ce8b40d28d6950 Show Copy	150 B	Fri, 18 May 2018 08:51:53 GMT
...03addb145a896b2 Show Copy	516.32 KB	Fri, 18 May 2018 08:51:55 GMT
...ea3324cc402f946 Show Copy	11.21 MB	Fri, 18 May 2018 08:52:29 GMT
...9a2404b85763e48 Show Copy	131 B	Fri, 18 May 2018 08:51:53 GMT
...0ae04f71a055c91 Show Copy	15.67 KB	Fri, 18 May 2018 08:56:23 GMT

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: nginx-image
spec:
  containers:
    - name: nginx
      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**.

The screenshot shows the 'Image Retention Policies' settings page. On the left, a sidebar contains 'Settings' and 'Image Retention'. The main content area has a title 'Image Retention Policies' and an information box stating 'Changes made to policies may take up to 24 hours to implement.' Below this, there are two main sections: 'Global Image Retention Policy' and 'Override Image Retention Policies'. The 'Global Image Retention Policy' section shows a policy named 'Global Image Retention Policy' with details 'Policy Details: Retain all images'. A red box highlights the 'Edit Global Policy' button, with an arrow pointing to the text 'Edit the Global Image Retention Policy'. The 'Override Image Retention Policies' section shows a red box around the 'Create Policy' button, with an arrow pointing to the text 'Create a new custom image retention policy'. At the bottom of this section, it says 'You have no override policies'.

Settings

Image Retention

Image Retention Policies

Global Image Retention Policy

Policy Details: Retain all images

Override Image Retention Policies

You have no override policies

Edit Global Policy

Create Policy

Edit the Global Image Retention Policy

Create a new custom image retention policy

OCIR Image Retention Policies (3)

Create Image Retention Policy Override [close](#)

Associated repositories are exempt from the global image retention policy.

POLICY NAME

Example_policy

☒ Delete any images that haven't been pulled in the specified number of days: 30

☒ Delete any images that haven't been tagged in the specified number of days: 30

EXEMPT TAGS OPTIONAL

prod,dev

Enter a comma separated list of tags. You may also use asterisk (*) to match any sequence of characters (e.g. latest,*prod*)

Save Settings

- 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

Example_policy

Policy Details: Delete associated repositories' images if the last pull is older than **30** days
Delete associated repositories' images if untagged for **30** days
Associated repositories are exempt from the global image retention policy

Exempt Tags: No tags

Repositories (1)

example_repo

+ Add Repository

Demo

<http://bit.ly/2X0QbuC>

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 Cloud always free tier:

[oracle.com/cloud/free/](https://www.oracle.com/cloud/free/)

OCI training and certification:

<https://www.oracle.com/cloud/iaas/training/>

<https://www.oracle.com/cloud/iaas/training/certification.html>
education.oracle.com/oracle-certification-path/pFamily_647

OCI hands-on labs:

ocitraining.qloudable.com/provider/oracle

Oracle learning library videos on YouTube:

youtube.com/user/OracleLearning

