



ORACLE

OCI Registry Service

Level 100

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Oracle Cloud Infrastructure

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Safe harbor statement

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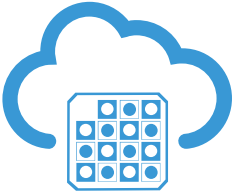
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Objectives

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.

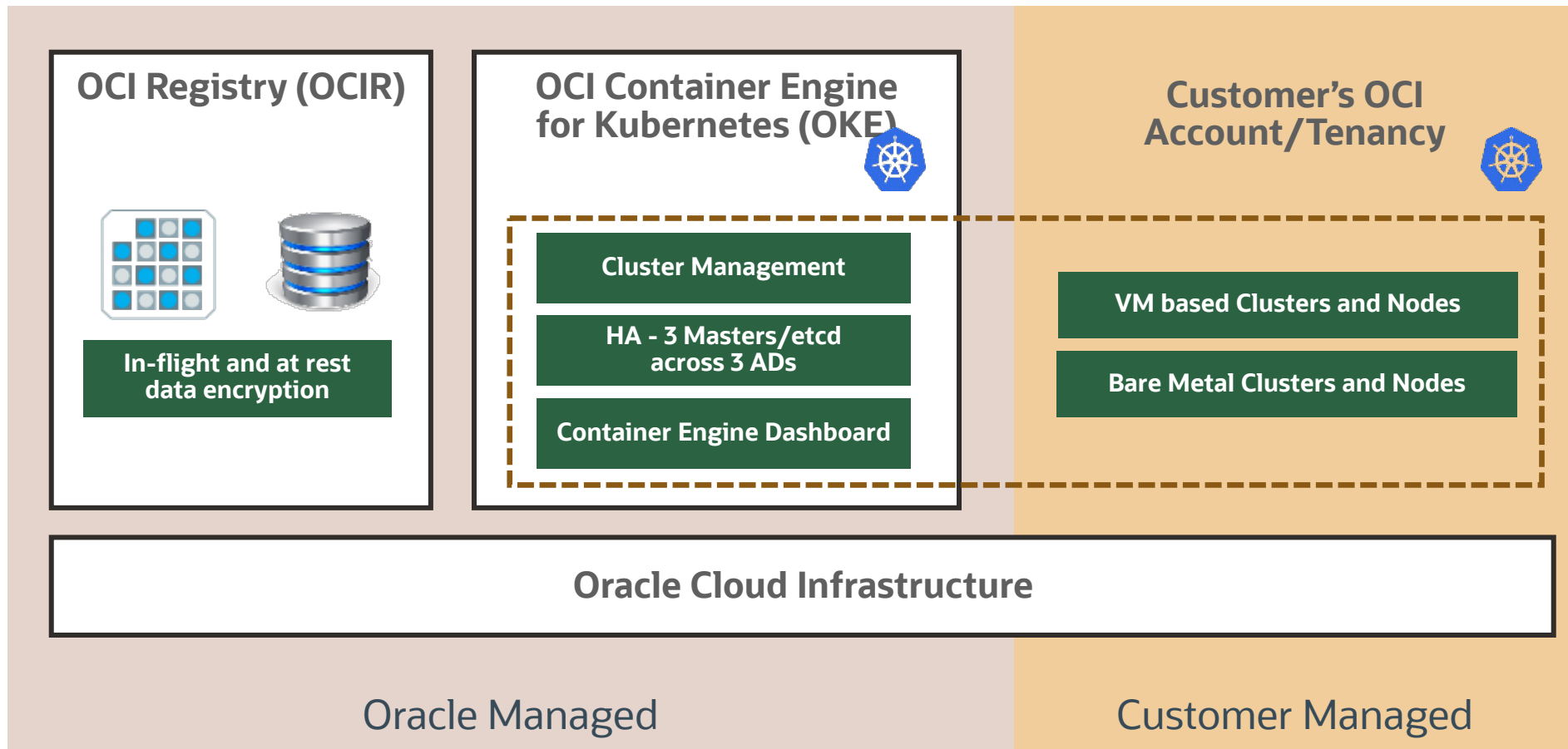
What Problems Does it Solve?

- 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

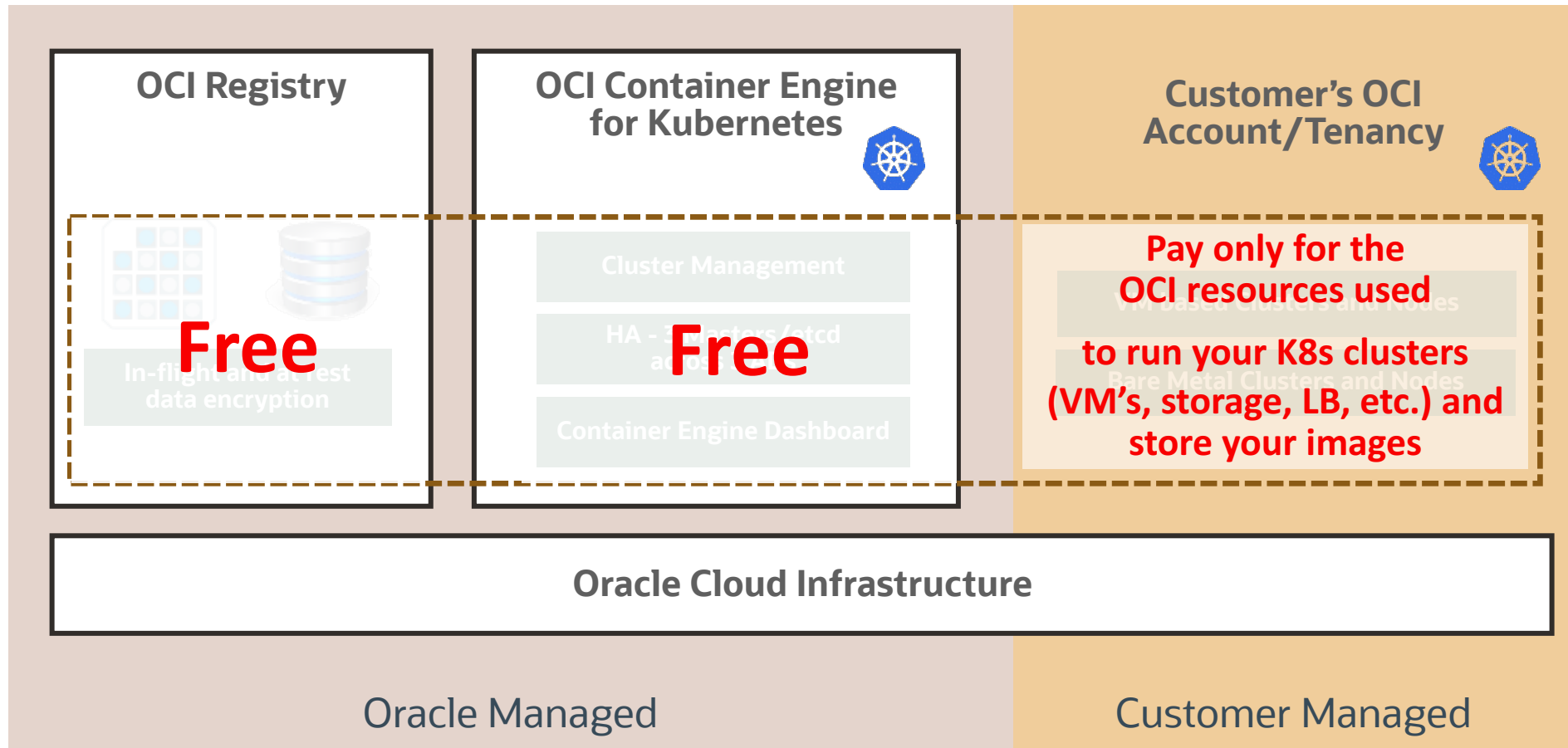
Key Benefits

- 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

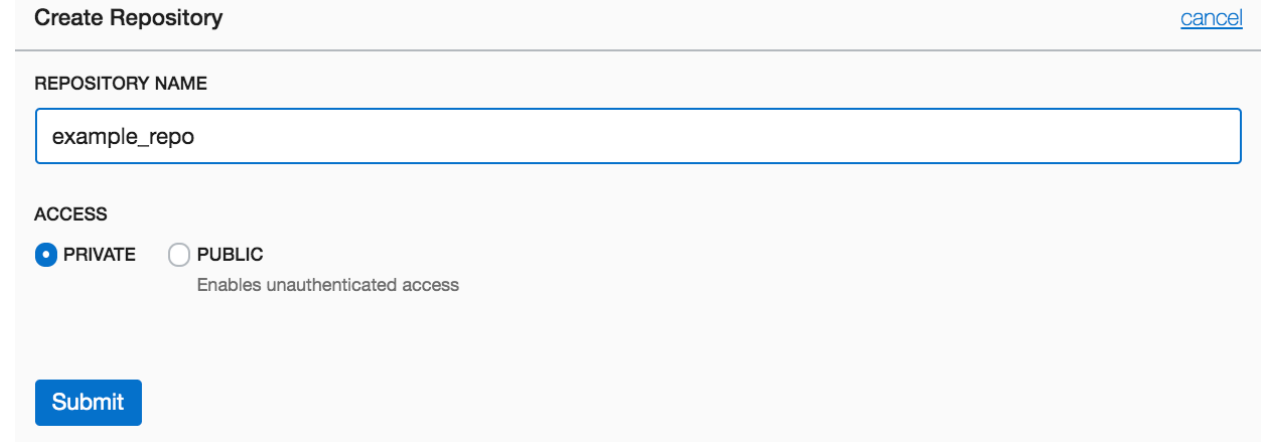
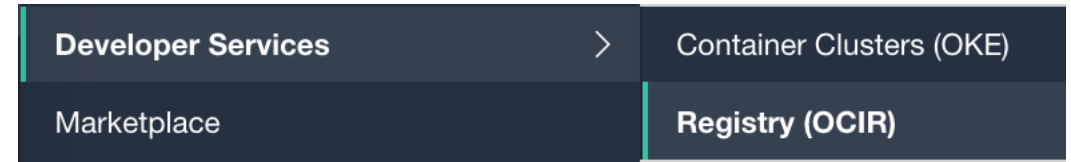
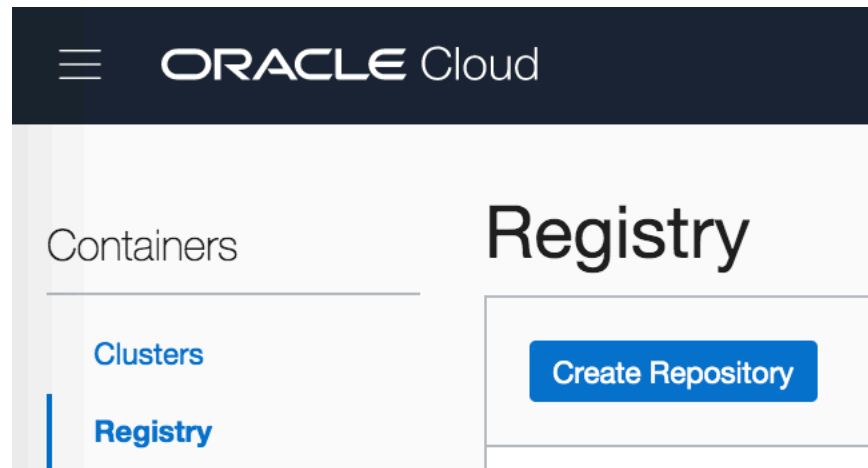


Pre-requisites for OCIR

- 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

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 text 'example_repo'. Below this is an 'ACCESS' section with two radio buttons: 'PRIVATE' (selected) and 'PUBLIC' (with a note 'Enables unauthenticated access'). At the bottom 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](#)

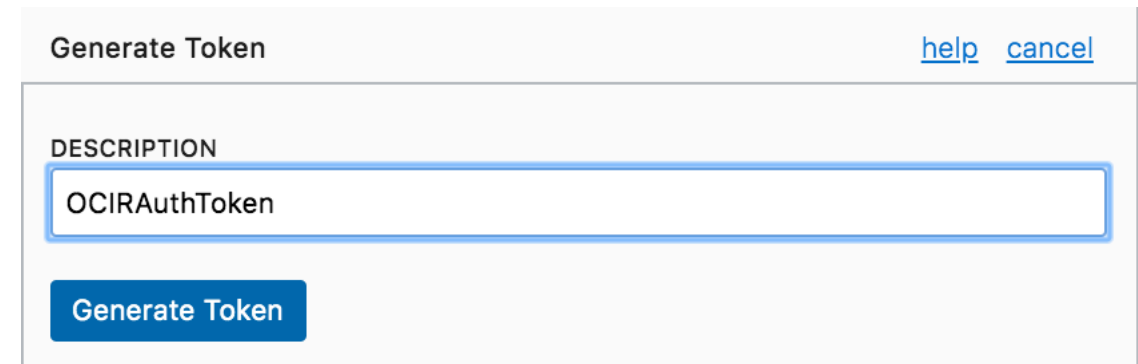
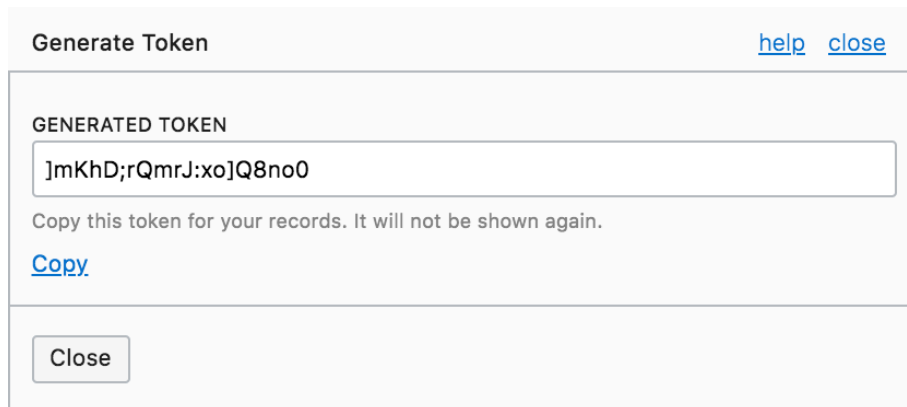
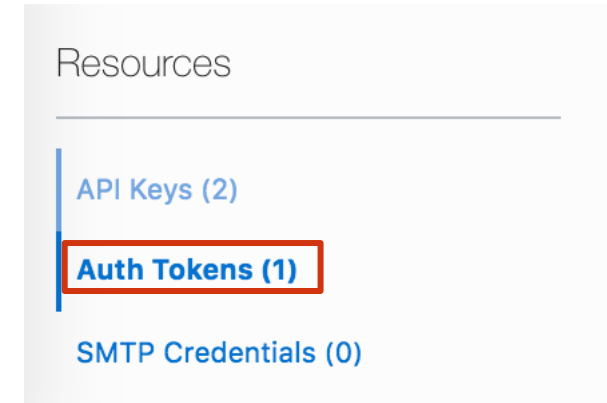
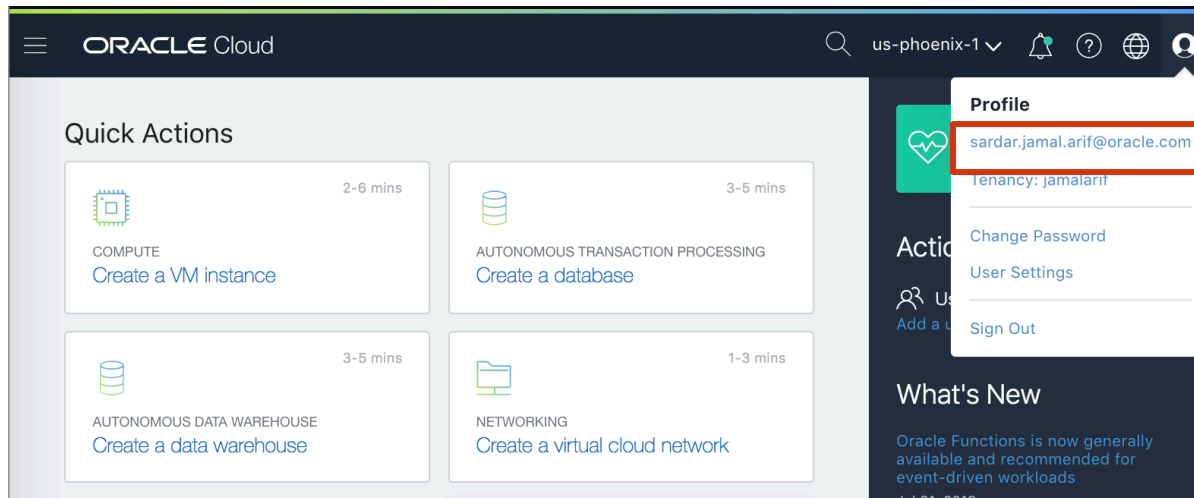
Layers

Associated 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.qcloudable.com/provider/oracle

Oracle learning library videos on YouTube:

youtube.com/user/OracleLearning

