OCI DevOps Project: Create an Artifact Registry and Set Up Artifacts and Environments in a DevOps Project

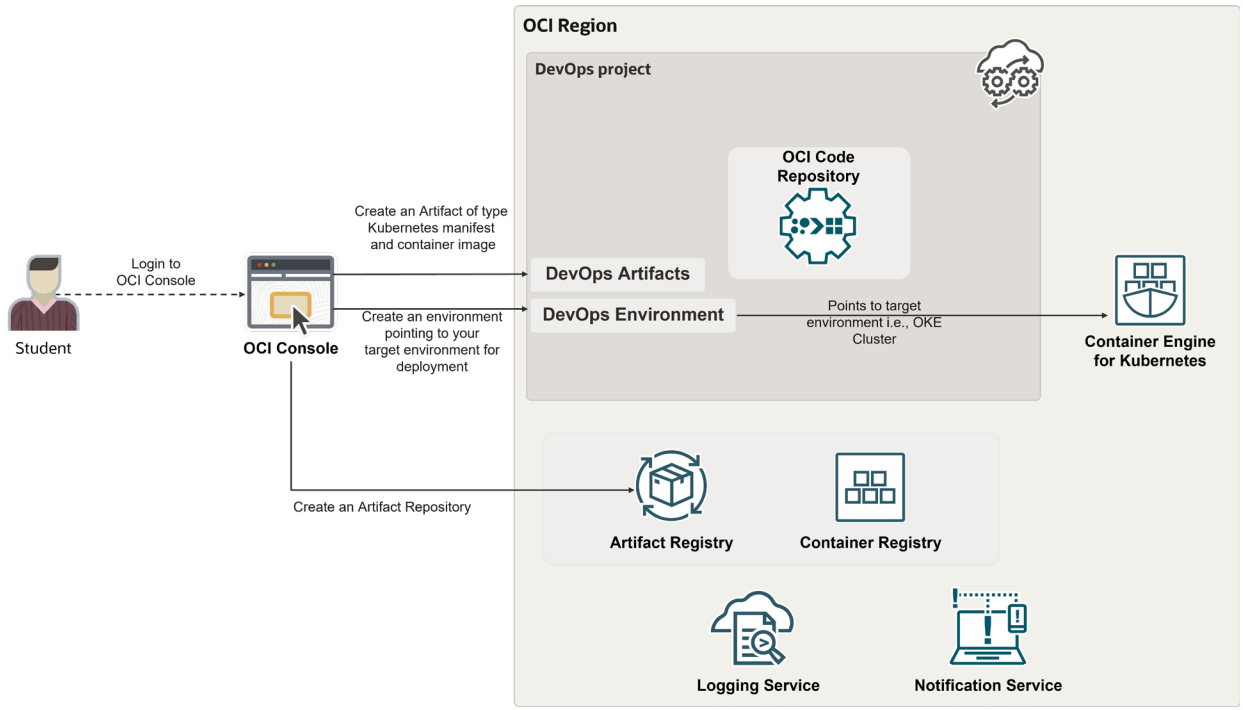
Lab 05-1 Practices

Estimated Time: 30 minutes

Get Started

Overview

Oracle Cloud Infrastructure (OCI) Artifact Registry is a repository service for storing, sharing, and managing software development packages.



In this lab, you will:

a. Create a repository to store and manage artifacts.

b. Add a Container Image Repository artifact to store your Docker images.

c. Create a reference to Kubernetes manifest.

d. Create a DevOps environment.

For more information on OCI Artifact Registry, see the OCI Artifact Registry Documentation.

For more information on setting up artifacts and environments in a DevOps project, see the OCI Environments Documentation and OCI Artifacts Documentation.

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Prerequisites

- You must complete the Managed Container Orchestration: Deploy a load-balanced Web application on an OKE cluster using Kubectl (Lab03-1) to perform tasks for this practice.
- You must complete the *Continuous Integration and Continuous Delivery: Work with code repositories in OCI DevOps project* (Lab04-1) to perform tasks for this practice.

Assumptions

- You are signed in to your Oracle Cloud Infrastructure (OCI) account using your credentials.
- A pre-created OKE cluster "**OKE-CLUSTER"** is available in your compartment.
- This lab assumes you're working in the Ashburn region. The resource naming convention `(iad)` used in this lab is according to Ashburn.
  If you're working in a different region, change the resource names accordingly. For example, for Phoenix, use `phx`.
- You will replace the *<userID>* placeholder with your Firstname.

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Identity and Access Management Policies

Add the following policies

Compartment-level policies:

Policies to manage artifacts and artifact repositories:

```
Allow group <group_name> to manage artifact-repositories in
compartment <compartment_name>

Allow group <group_name> to manage generic-artifacts in
compartment <compartment_name>

Allow group <group_name> to manage devops-deploy-artifact in
compartment <compartment_name>

Allow group <group_name> to manage devops-deploy-environment in
compartment <compartment_name>
```

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Create a Repository to Store and Manage Artifacts

An artifact is a software package, library, or a zip file used for deploying your applications. These artifacts are grouped into repositories, which are collections of related artifacts.

In this lab, you will create an Artifact Registry Repository to store your Kubernetes manifest.

Tasks

1. In the Console, open the navigation menu and click **Developer Services**. Under **Containers & Artifacts**, click **Artifact Registry**.
2. Select your *<Compartment Name>* from List scope on the left menu.
3. Click **Create repository** and fill the following values in the form:
    a. **Name**: `IAD-DOP-LAB05-1-AR-01`
    b. **Compartment**: Select your *<Compartment Name>*.
    c. Select **Immutable artifacts**. Your new repository will make its artifacts immutable.
    d. Click **Create.**

    The **IAD-DOP-LAB05-1-AR-01** repository is created and available.

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Add Container Image Repository Artifact to Store Docker Images

Artifacts are used to specify software package versions for deployment. DevOps artifacts can be of following types:

- Container image repository
- Instance group deployment configuration
- Kubernetes manifest
- General artifact
- Helm Chart

You will add container image repository artifact to store your Docker images.

Tasks

1. Open the navigation menu and click **Developer Services**. Under **DevOps**, click **Projects**.
2. Select your *<Compartment Name>* from List scope on the left menu.
3. Open the DevOps project **IAD-DOP-LAB04-1-DP-01-*<userID>*** created in *Continuous Integration and Continuous Delivery: Work with code repositories in OCI DevOps project* (Lab04-1).
4. Click **Artifacts** from the left menu to navigate to the artifacts page.
5. Click **Add artifact** to create an artifact and fill the form with the following values:
   a. **Name**: `IAD-DOP-LAB05-1-AF-01`
   b. **Type**: Select **Container image repository** from the list of options.
   c. **Fully qualified path to the image in Container Registry**:
      <region-key>`.ocir.io/`*<tenancy-namespace>*`/`*<repo-name>*`:`*<tag>*

      For example,

      `iad.ocir.io/oracletenancy/iad-dop-lab02-1-ocir-1/oci_sample_webapp_`*<userID>*`:${BUILDRUN_HASH}`

Replace `<tenancy-namespace>` with your tenancy name, `<userID>` with your Firstname, and `<region-key>` with the key for the Oracle Cloud Infrastructure Registry region you're using. For example, iad is the region key for US EAST (Ashburn) region. See the Availability by Region topic in the Oracle Cloud Infrastructure documentation.

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Ensure that you append `${BUILDRUN_HASH}` in the fully qualified image URL as the tag. This dynamically updates the version of the pushed docker image.

d. Select **Allow parameterization** and click **Add**.

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Create a Reference to Kubernetes Manifest

You will now create a DevOps artifact of type Kubernetes manifest.

Tasks

1. Open the DevOps project **IAD-DOP-LAB04-1-DP-01-*<userID>*** .
2. Click **Artifacts** from the left menu to navigate to the artifacts page.
3. Click **Add artifact** to create an artifact and fill the form with the following values:
    a. **Name**: `IAD-DOP-LAB05-1-AF-02`
    b. **Type**: Select **Kubernetes Manifest** from the list of options.
    c. **Artifact Source**: Select **Artifact Registry repository**.'
    d. **Artifact Registry repository**: Click **Select** and select your artifact registry **IAD-DOP-LAB05-1-AR-01** created earlier.
    e. **Artifact Location**: Select **Set Custom Location**.
        1) **Artifact Path**: `lab05-1-<userID>-oke-manifest`
        For example,
        `lab05-1-mahendra-oke-manifest`
        2) **Version**: `${BUILDRUN_HASH}`
    f. Select **Allow parameterization** and click **Add**.

You will now see both the artifacts IAD-DOP-LAB05-1-AF-01 and IAD-DOP-LAB05-1-AF-02, listed in the artifacts page in your DevOps project IAD-DOP-LAB04-1-DP-01-*<userID>*.

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Create a DevOps Environment

An environment is the target platform for your application. You will now create an Environment to point to your OKE cluster.

Tasks

1. Open the DevOps project **IAD-DOP-LAB04-1-DP-01-<*userID*>**.
2. Click **Environments** from the left menu to navigate to the environments page.
3. Click **Create environment** and select **Oracle Kubernetes Engine** as the Environment Type. Fill the rest of the form with the following values:
    a. **Name**: `IAD-DOP-LAB05-1-ENV-01`
    b. **Description**: `This environment is pointing to pre created OKE cluster`.
    c. Click **Next**.
    d. **Region**: The region you are working in. This is populated by default.
    e. **Compartment**: Select your compartment.
    f. **Cluster**: Select **OKE-CLUSTER** from the list.
    g. Click **Create environment.**

You will now see the environment IAD-DOP-LAB05-1-ENV-01 in active state, listed on the environment page in your DevOps project IAD-DOP-LAB04-1-DP-01-*<userID>*.

Important Note: Do not delete any artifacts and resources created in this lab because they will be required in the upcoming labs.

Congratulations! in this lab you learned to create a repository to store, share and manage your artifacts. You added a container image repository artifact to store your Docker images and created a reference to your manifest in the Artifact Registry repository.

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