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**Working with Custom Images on Google Compute Engine**

**Introduction**

In this hands-on lab, we are going to practice creating custom images from two versions of a web server (which will be provided for you), add both images to the same image family, describe the image family, deprecate an image, and create a new web server from our custom images.

**Solution**

Begin by logging in to the **GCP Console** using the credentials provided on the hands-on lab page.

Be sure to launch the lab in incognito (or other private view) mode to avoid cached login issues.

Make sure the project named working-with-\* is selected on your Google Cloud console, otherwise you might have permission issues to access your VM instances and images.

You will have two custom web servers created in Compute Engine for you when you begin the lab.

**Create Image from base-apache Instance Using Web Console**

Create the custom image from the base-apache instance using the web console:

* Navigate to the **Compute Engine** section using the menu in the top left.
* Stop both instances by checking the boxes next to the instance name and clicking the **Stop** icon in the top menu.
* Go to **Compute Engine** > **Images**.
* Click **CREATE IMAGE**.
* Name image *webserver-base*.
* In the **Source** dropdown menu, select **Disk**.
* In the **Source disk** dropdown menu, select **base-apache**.
* Leave the **Location** as **Multi-regional**.
* Set **Family** to *webserver*.
* Click **Create**.

**Create Image from custom-webpage Instance using gcloud Command**

Create an image from the custom-webpage instance using the gcloud command:

* Stop the instance (if it is not already stopped).
* Open Cloud Shell (the icon is in the blue bar at the top of the page).
* Enter the following command to create the image from the **custom-webpage** disk, name the image *custom-webpage*, and add it to the *webserver* image family:
  + gcloud compute images create custom-webpage --source-disk=custom-webpage --source-disk-zone=us-central1-a --family=webserver
* Verify that image is created and in the appropriate family using the web console.

**View Images in Web Console and View webserver Image Family Information in Command Line**

View the images in the web console and view the **webserver** image family information in the command line:

* In web console, go to **Compute Engine** > **Images**.
* To describe image family and view latest image, enter the following command:
  + gcloud compute images describe-from-family webserver
* The shown image is the latest version.

**Deprecate Base Image in Our webserver Image Family Using Command Line**

Deprecate the base version using the command line:

* First, view process in web console:
  + Go back to **Compute Image** > **Images**.
  + Place check next to **webserver-base**, and click **DEPRECATE** from the three-dot icons on the far right.
  + Set **State** to **Deprecated**, and set **Replacement** as **custom-webpage**.
  + Cancel out and do the same thing via the command line.
* In Cloud Shell, enter the following command:
  + gcloud compute images deprecate webserver-base --state DEPRECATED
* Verify in the web console.

**Create a New Web Server from Custom Image**

Create a new web server from the custom image:

* Go to **Compute Engine** > **VM Instances**.
* Click **Create Instance**.
* Name the instance *new-webpage*.
* Place it in the **us-east1 (South Carolina)** Region and the **us-east1-b** Zone.
* In the **Machine configuration** section, choose the **e2-micro** Machine type.
* Under **Boot disk**, click **Change**.
* Click on **Custom images** from the top menu.
* Click on **Show deprecated images** to view all images.
* Select **custom-webpage**, and click **Select**.
* Check the box for **Allow HTTP traffic** under **Firewall** settings.
* Click **Create**.
* Once the instance is up, click the **external IP address** to verify the new web page works.

**Conclusion**

Congratulations, you've completed this hands-on lab!