IDC WIP Docs: Visualizing segmentation results in OHIF Viewer

IDC Viewer can be used only to visualize the data hosted and maintained by IDC. When you perform your own analysis, the result of this analysis will not be possible to integrate into IDC quickly enough to support prototyping (and likely, you will not want every result you generate analyzing IDC data shared with the entire world right away).

In the following steps you will learn how to prepare your segmentation results to be compatible with the viewer, populate a DICOM store that can be used by the viewer to access the data, and to use an instance of OHIF Viewer to view your data.

Prerequisites

- Imaging data you segmented, in DICOM format (that's what you get from IDC)
- Segmentation in a volumetric format that can be loaded using ITK (e.g., NRRD or NIfTI)
- Complete Google-related setup steps described here: https://learn.canceridc.dev/introduction/getting-started-with-gcp (a video walkthrough here https://www.youtube.com/watch?v=i08S0KJLnyw)
- Have a google project with billing account configured (you can use $300 if Google free cloud credits that will expire in 3 months, or you can apply through IDC to get credits that will not expire - see details here)
- Have converter that can generate DICOM SEG from ITK volume installed (these instructions are based on dcmqi, which is a C++ library with command-line converters, but you can also use highdicom and write a conversion code)

## Step 1: Convert your segmentation results into DICOM Segmentation format

- To perform the conversion with dcmqi, you will need 1) files corresponding to the source DICOM image series; 2) segmentation in ITK-readable volume format; 3) JSON file describing your segmentation and parameterizing the conversion. The conversion process can be done with dcmqi itkimage2segimage tool, and is documented here: https://qiicr.gitbook.io/dcmqi-guide/opening/cmd_tools/seg/itkimage2segimage.
- Warning: The steps may be involved if you have large number of labels in your segmentation file!
- Warning: if you want to see segmentation in the OHIF 2D view, make sure the geometry of the segmentation matches that of the segmented image! You may need to resample your segmentation prior to conversion.

Step 2: Upload both the image series and the segmentation into a GCP storage bucket

You can do this using GCP console, or GCP SDK command line interface

GCP Console

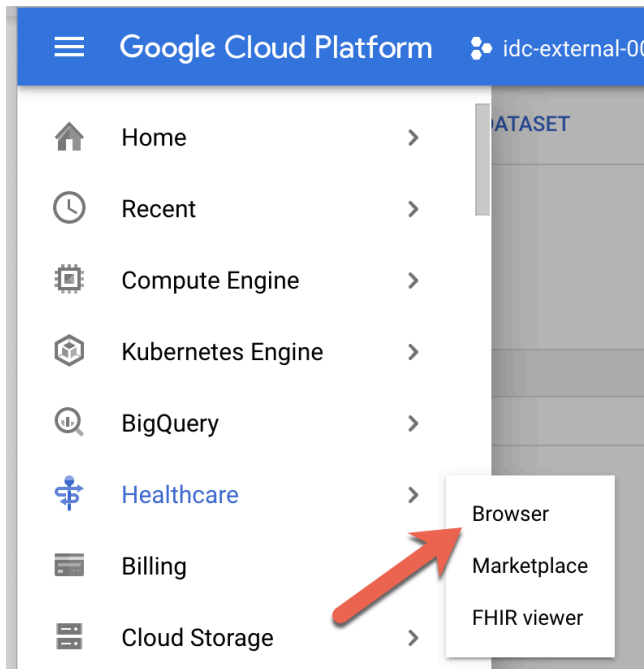- Create a storage bucket, or use an existing bucket (pick a name, and keep the default options)
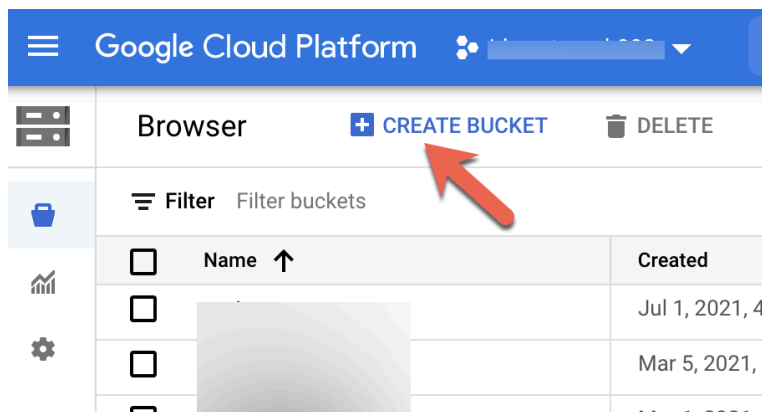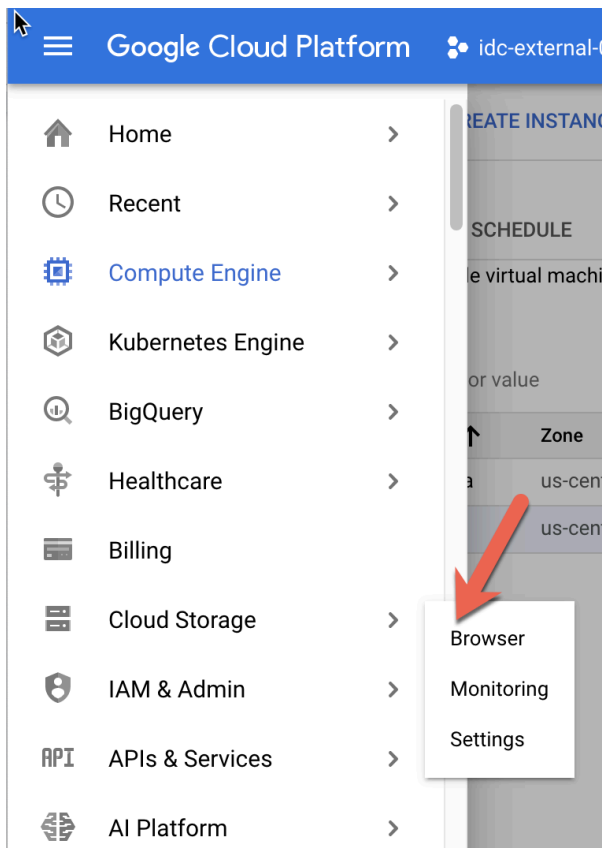
- Upload both the source image series and the DICOM segmentation into the bucket
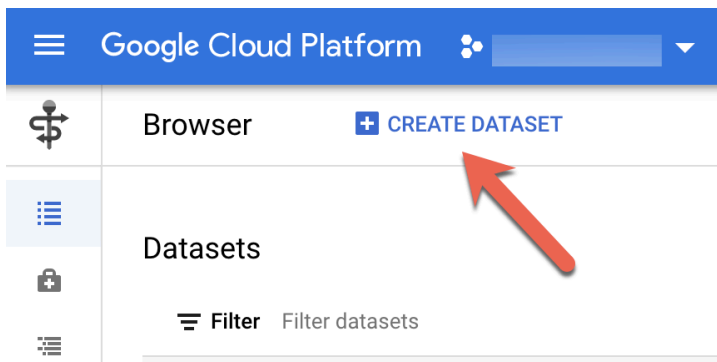

Step 2: Populate GCP DICOM store with the data
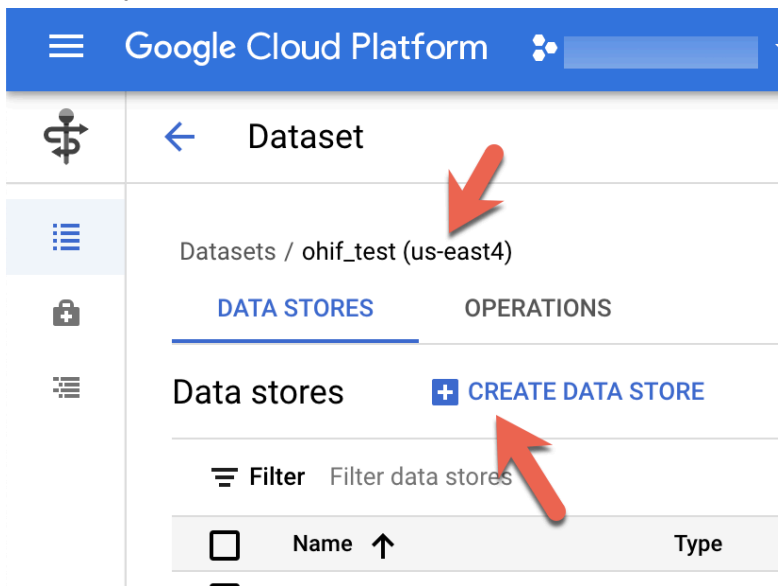
GCP Console
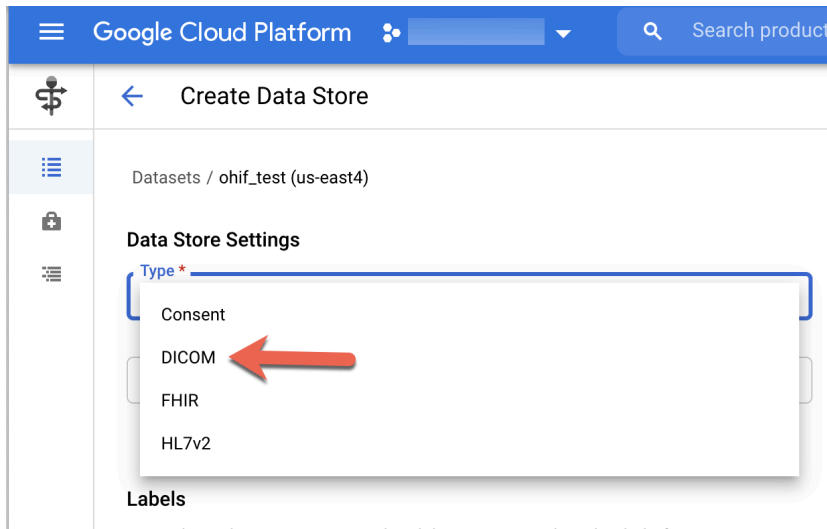
- Navigate to GCP Healthcare section

- Create a DICOM dataset

- and a DICOM store within that dataset; take note of the region in which the dataset is located - in this case, us-east4 - you will need it later!
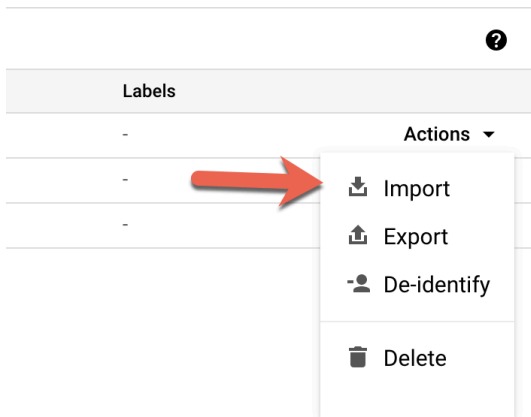

- Make sure you choose DICOM as the data store type!

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Step 3: Populate DICOM store with the content of the storage bucket you created in Step 1

- You should see the option "Import" under "Actions" on the right of the data store you created

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- Navigate to the bucket containing DICOM data and import it

Step 4: Access the content of the DICOM store

- Navigate to the URL where the test instance of the OHIF Viewer is hosted (this is just one test example, and you can set one up yourself, but we don't have instructions for this yet!): https://idc-tester-1.web.app/
- You will be asked to grant permissions
- Navigate to the project, zone, dataset and data store you created in Step 3

TODO - OHIF Viewer deployment

- Follow the firebase steps in https://github.com/ImagingDataCommons/idc-sandbox/blob/main/deploy.sh