

# QIIME-2 Using Atmosphere on Jupyter Notebook



## Use QIIME available as VICE app in DE first.

QIIME with Jupyter notebook is now available as ready to use as a VICE app in DE. This is quicker and easier option instead of trying to do this via Atmosphere. If you need a highly customized version of QIIME then consider using the version in Atmosphere, else use QIIME via DE

You can learn more about using QIIME via VICE in DE [here](#) (tutorial and webinar)

## Rationale and background:



QIIME 2 is a powerful, extensible, and decentralized microbiome analysis package with a focus on data and analysis transparency. QIIME 2 enables researchers to start an analysis with raw DNA sequence data and finish with publication-quality figures and statistical results.

Key features:

- Integrated and automatic tracking of data provenance
- Semantic type system
- Plugin system for extending microbiome analysis functionality
- Support for multiple types of user interfaces (e.g. API, command line, graphical)

QIIME 2 is a complete redesign and rewrite of the [QIIME 1](#) microbiome analysis pipeline. QIIME 2 will address many of the limitations of QIIME 1, while retaining the features that makes QIIME 1 a powerful and widely-used analysis pipeline.

QIIME 2 currently supports an initial end-to-end microbiome analysis pipeline. New functionality will regularly become available through QIIME 2 plugins. You can view a list of plugins that are currently available on the [QIIME 2 plugin availability](#) page. The [future plugins](#) page lists plugins that are being developed.

To see more about QIIME 2, take a look at Greg Caporaso's [American Gut blog post](#) (15 April 2016) and [SciPy 2016 presentation](#) (15 July 2016).

## Introduction

This tutorial will orient you to using the QIIME 2 installed on Atmosphere using Jupyter Notebook. This particular demo is adapted from [QIIME2 site](#).

This tutorial will take users through steps of:

1. Launching the Qiime-2-Jupyter-notebook Atmosphere image
2. Running Qiime-2-Jupyter-notebook on an test data

**Please work through the tutorial and add your comments on the bottom of this page. Or send comments per email to [support@cyverse.org](mailto:support@cyverse.org). Thank you.**

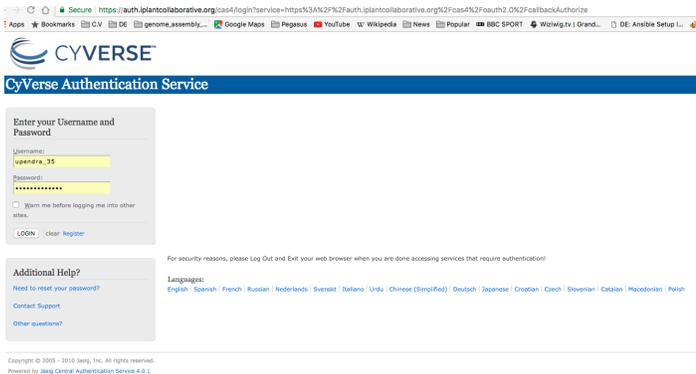


## Learn about allocations

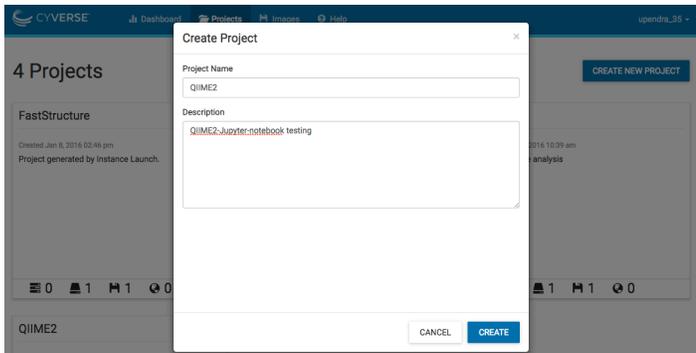
Learn about CyVerse's allocation policies [here](#).

## Part 1: Connect to a Qiime-2-Jupyter-notebook Atmosphere Image (Virtual Machine)

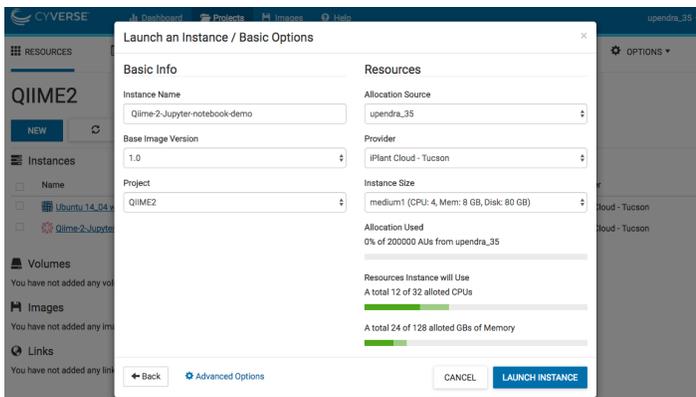
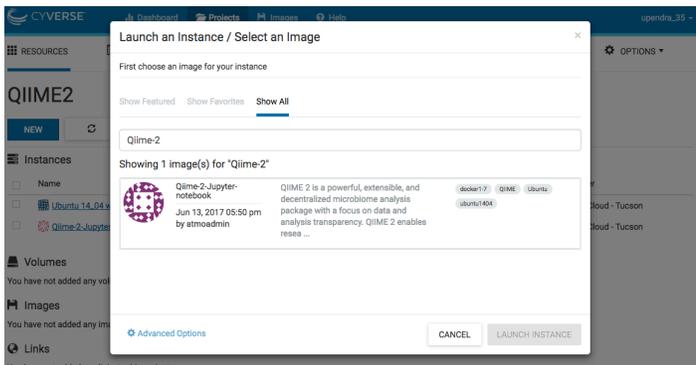
Step 1. Go to <https://atmo.cyverse.org> and log in with your CyVerse credentials



Step 2. Create a project and name the project name as **QIIME2** and description as **QIIME2-Jupyter-notebook testing**

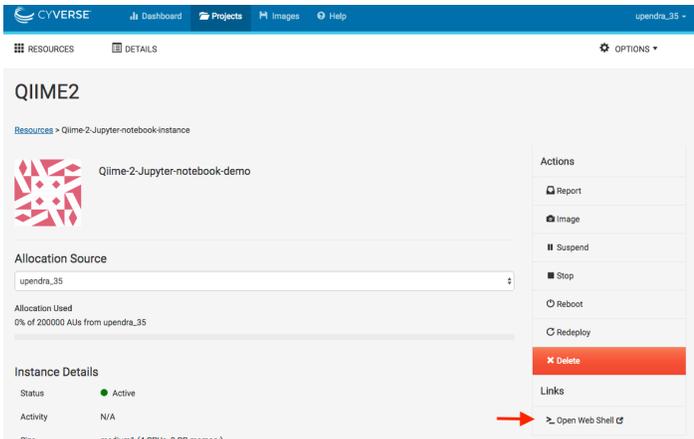
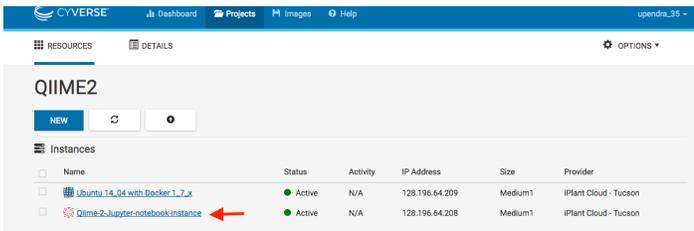


Step 3. Click the project and then Select the image **Qiime-2-jupyter-notebook** and click **Launch Instance**. It will take ~10-15 minutes for the cloud instance to be launched.

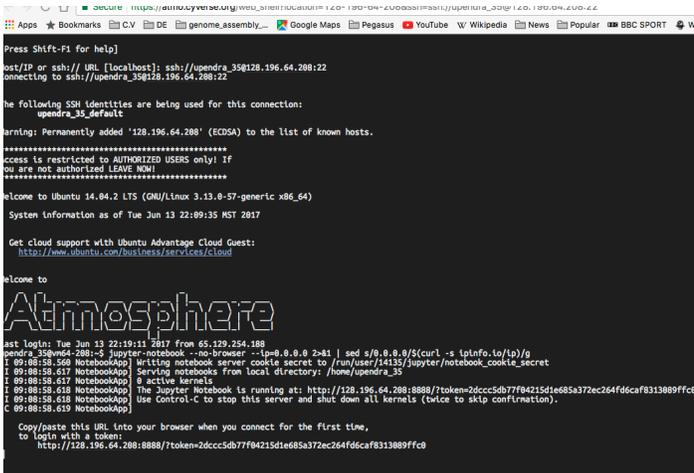


**Note:** Instances can be configured for different amounts of CPU, memory, and storage depending on user needs. This tutorial can be accomplished with the small instance size, **medium1 (4 CPUs, 8 GB memory, 80 GB root)**

Step 4. Once the VM is ready. Click the VM which will take onto next screen where you can launch web shell



Step 5. Run Jupyter Notebook command for launching Jupyter notebook. The code for running Jupyter-notebook is given below..



 In the latest version (2017.7.0) of Qiime2, you can just type `jupyter-notebook` and it will launch Jupyter notebook

```
$ upendra_35@vm64-208:~$ jupyter-notebook
[I 09:08:58.560 NotebookApp] Writing notebook server cookie secret to
/run/user/14135/jupyter/notebook_cookie_secret
[I 09:08:58.617 NotebookApp] Serving notebooks from local directory: /home/upendra_35
[I 09:08:58.617 NotebookApp] 0 active kernels
[I 09:08:58.618 NotebookApp] The Jupyter Notebook is running at:
http://128.196.64.208:8888/?token=2dccc5db77f04215d1e685a372ec264fd6caf8313089ffc0
[I 09:08:58.618 NotebookApp] Use Control-C to stop this server and shut down all
kernels (twice to skip confirmation).
[C 09:08:58.619 NotebookApp]
Copy/paste this URL into your browser when you connect for the first time,
to login with a token:

http://128.196.64.208:8888/?token=2dccc5db77f04215d1e685a372ec264fd6caf8313089ffc0 #
<- Copy and paste this url in a browser (chrome, firefox, Safari etc.,)
```



Do not copy and paste the above line as it will not work since it is specific to my VM.

## Part 2: Running QIIME-2 Jupyter notebook

Step 1. Copy/paste this URL into your browser when you connect for the first time. You should see something like this



Step 2. Click the New tab and then **bash** kernel to launch new Jupyter notebook page



Step 3. Now you can copy and paste the commands from the below notebook to run Qiime2 moving sample tutorial

<p> </p>