Getting Started

Create an account

♦ Go to http://scitest02.pha.jhu.edu/login-portal
♦ Click on “Register New Account” and fill in the registration form.

Create a new IPython container

♦ Go to http://scitest02.pha.jhu.edu/ipythonhub
♦ Click on “Create container”.

![Image of the registration form](image1.png)

![Image of the IPython container creation](image2.png)
♦ Choose a name for your new container and click “Create”.

♦ You will see that a new entry has been created in the IPython containers table.
♦ Click on the container name to start an IPython session.
Working in IPython

Create a notebook

- When you start an IPython session from the Dashboard, it will open in a new browser tab:

![IPython Dashboard screenshot](image)

- Create a new IPython 2 notebook by selecting “New” > “Notebooks” > “Python 2” from the menu. You can choose Python 3 kernel as well. You can also upload an existing IPython notebook by clicking the “Upload” button.

![IPython menu screenshot](image)

- The notebook will open in a new tab.
Using the notebook

- You can rename the notebook by selecting “File” > “Rename...” from the notebook menu.

- Type fragments of Python code in the input cells and execute them one by one by pressing Shift + Enter, or by clicking the “▶” button.
Querying CasJobs from IPython

(ATTENTION!!! The following example will only work with Python 3 kernel)

♦ In the example below replace “my_access_token” value with your own access token. You can find your access token on the Dashboard page in the “User info” section.

```python
import sys
import SciServer.CasJobs

my_access_token = "74caf391c9f24ab291da45211726b0d6";
q = "SELECT TOP 10 objid, ra, dec FROM PhotoObj"
s = responseStream.read().decode()
print("\n---Query---\n{}\n---Result---\n{}".format(q,s))
```

---Query---
SELECT TOP 10 objid, ra, dec FROM PhotoObj
---Result---
objid,ra,dec
123765175828499323,269.9986161664671,0.001922284548727
123765175828499326,269.997628587975,0.0005177655171362
123765175828499348,270.0026375197987,0.00054485546874304
123765175828499319,270.0049791331,0.00299723797180513
123765175828499325,270.00223792275,0.00303451568030639
123765175828499317,269.998838605169,0.0038362223882232
123765175828499318,269.999838605169,0.0038362223882232
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123765175828499318,269.999838605169,0.0038362223882232
Using persistent storage

- The “persistent” folder inside your IPython environment is shared among all your containers. The notebooks and data saved in this folder will remain even after you delete the container, and you can later reuse them in other containers.

- You can browse your persistent storage folder by clicking the “Browse” button on the main Dashboard page. HTTP links to the files in the persistent folder are public and can be used to share data and notebooks with people.

Running astroML examples

- You can find some examples here:
  
  http://www.astroml.org/examples/index.html
  http://cadence.lsst.org/introAstroML/blog/

  Most of them should work without any changes in the IPython environment with Python 2 kernel.

- This example requires Python 3 and uses CasJobs (see previous section).
  
  http://www.sdss.jhu.edu/~szalay/laserena/plot_neighbors_photoz.zip
Troubleshooting

- If a container’s status shows “STOPPED”, you can restart it by going to the container info page (the blue “i” icon on the main Dashboard page) and choose “Start” from the actions list.
- You can try updating the proxy configuration if the container itself seems to be fine but you still cannot access the IPython notebook. Choose “Update proxy” from the actions list.
- If nothing else works, delete the container and create a new one.