



NHSC/PACS Web Tutorials

HIPE Essentials

PACS-103

Accessing and Storing Data From the Herschel Science Archive



Introduction

This tutorial introduces how to use script *getPACSdata.py* to download data from the Herschel Science Archive (HSA) and store the retrieved data to a local store.

Pre-requisites

You should have completed the following tutorials:

- ***PACS-101: How to use these tutorials***
- ***PACS-102: Reading and executing custom scripts***

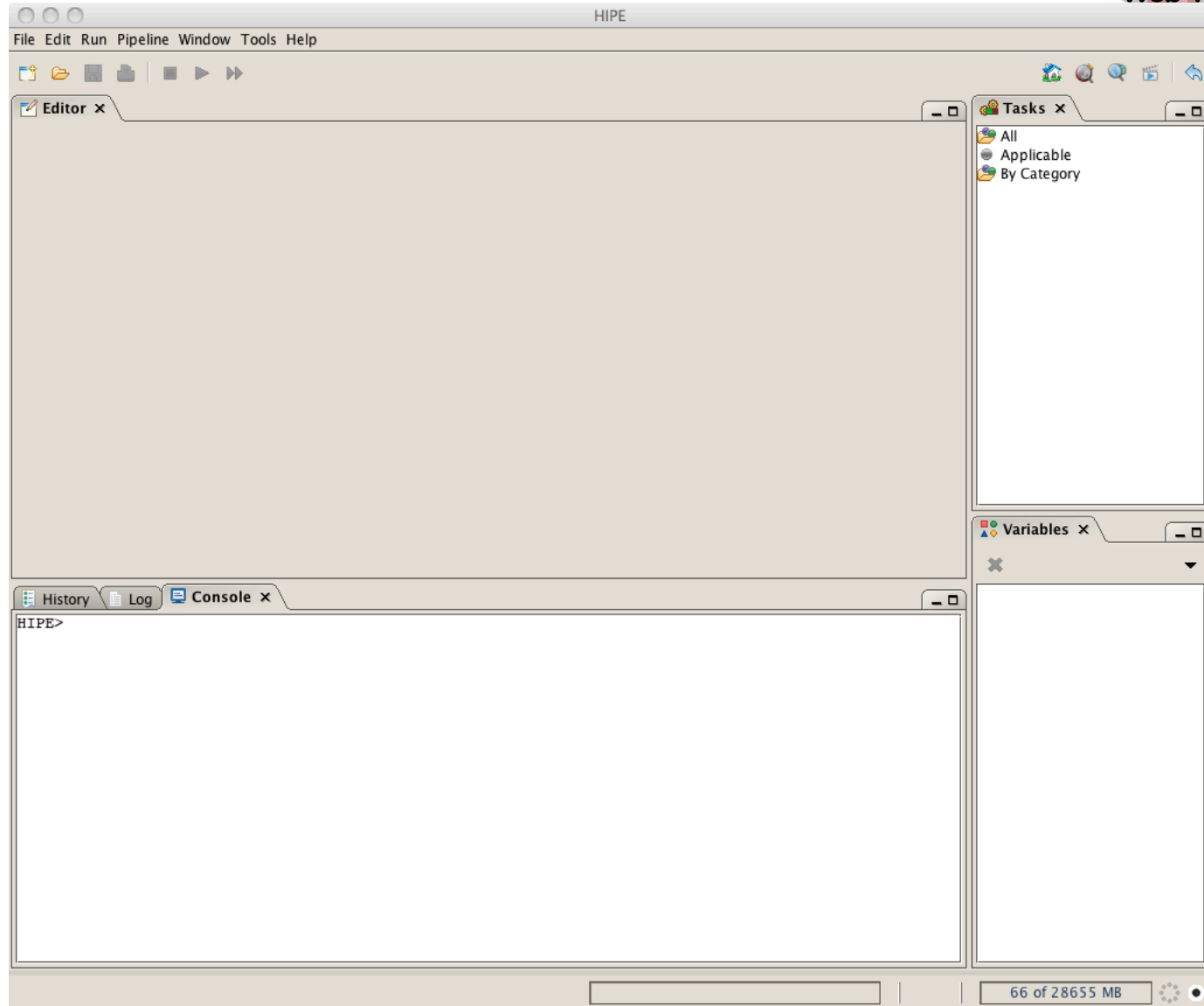


Step 1

Start HIPE



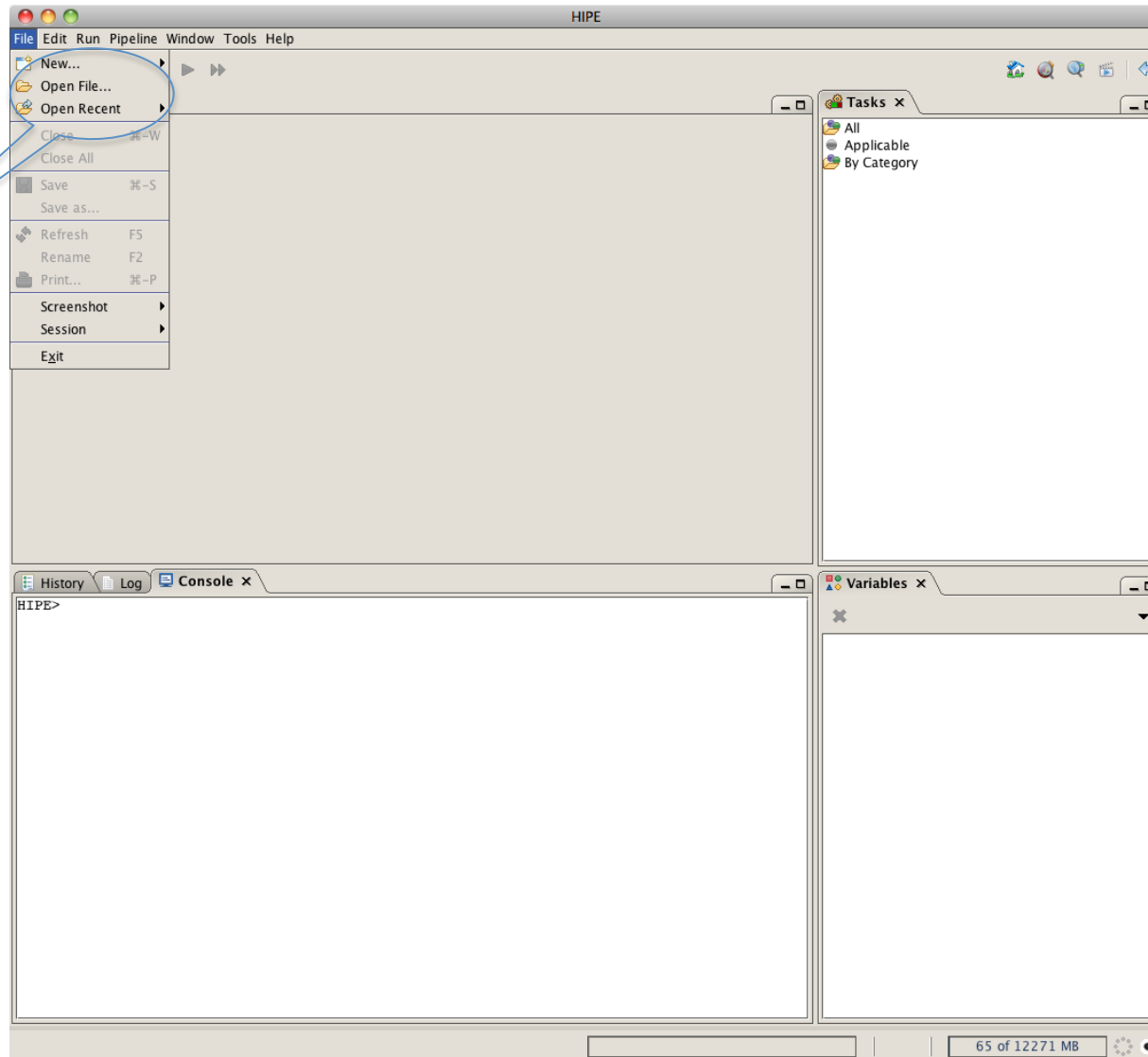
HIPE on startup



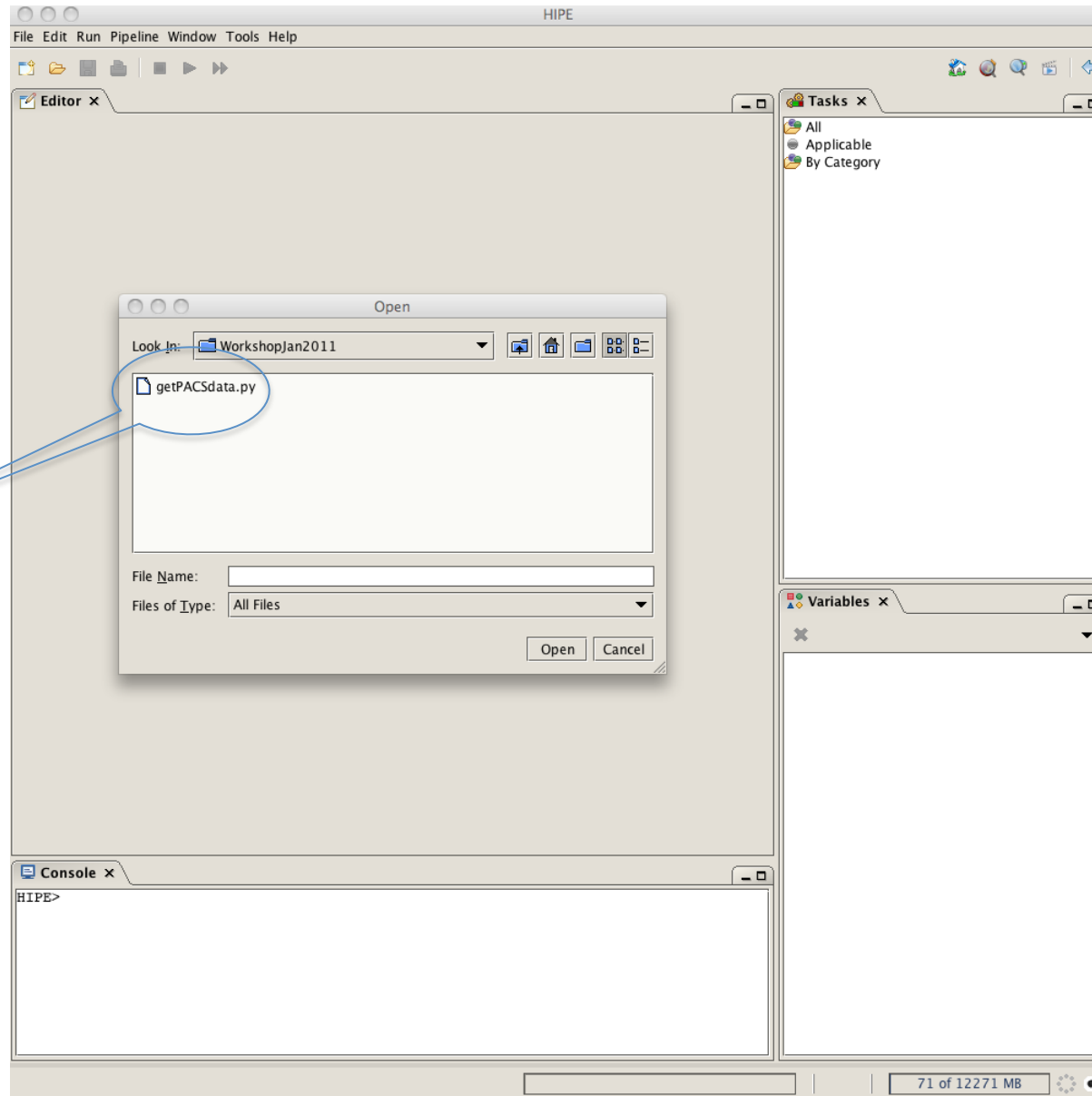


Step 2

Load file getPACSdata.py

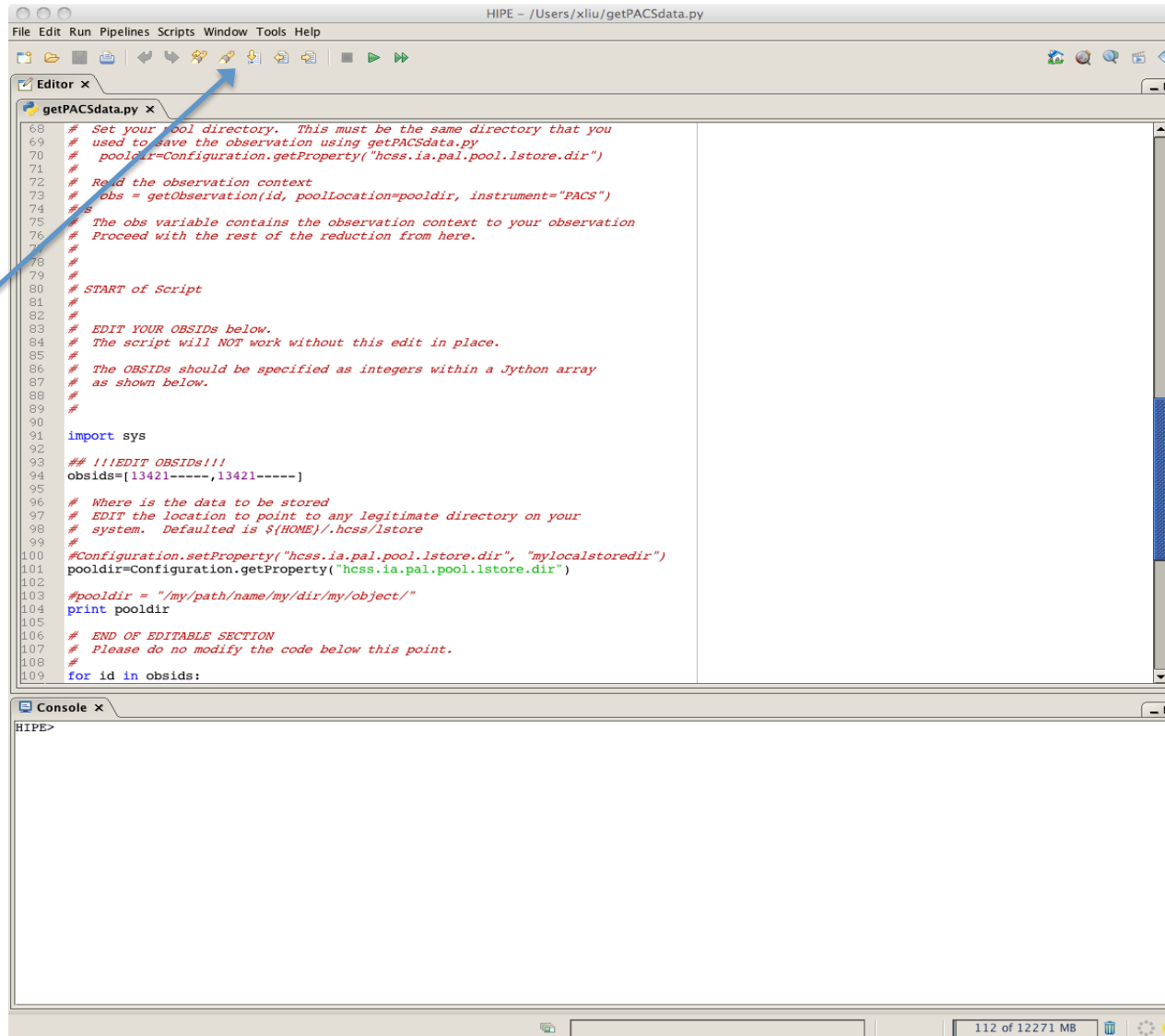


From the
File Menu
Select
Open File...



Select the file from the file dialog and click **Open** button.

The editor window shows that the file has been loaded into HIPE.



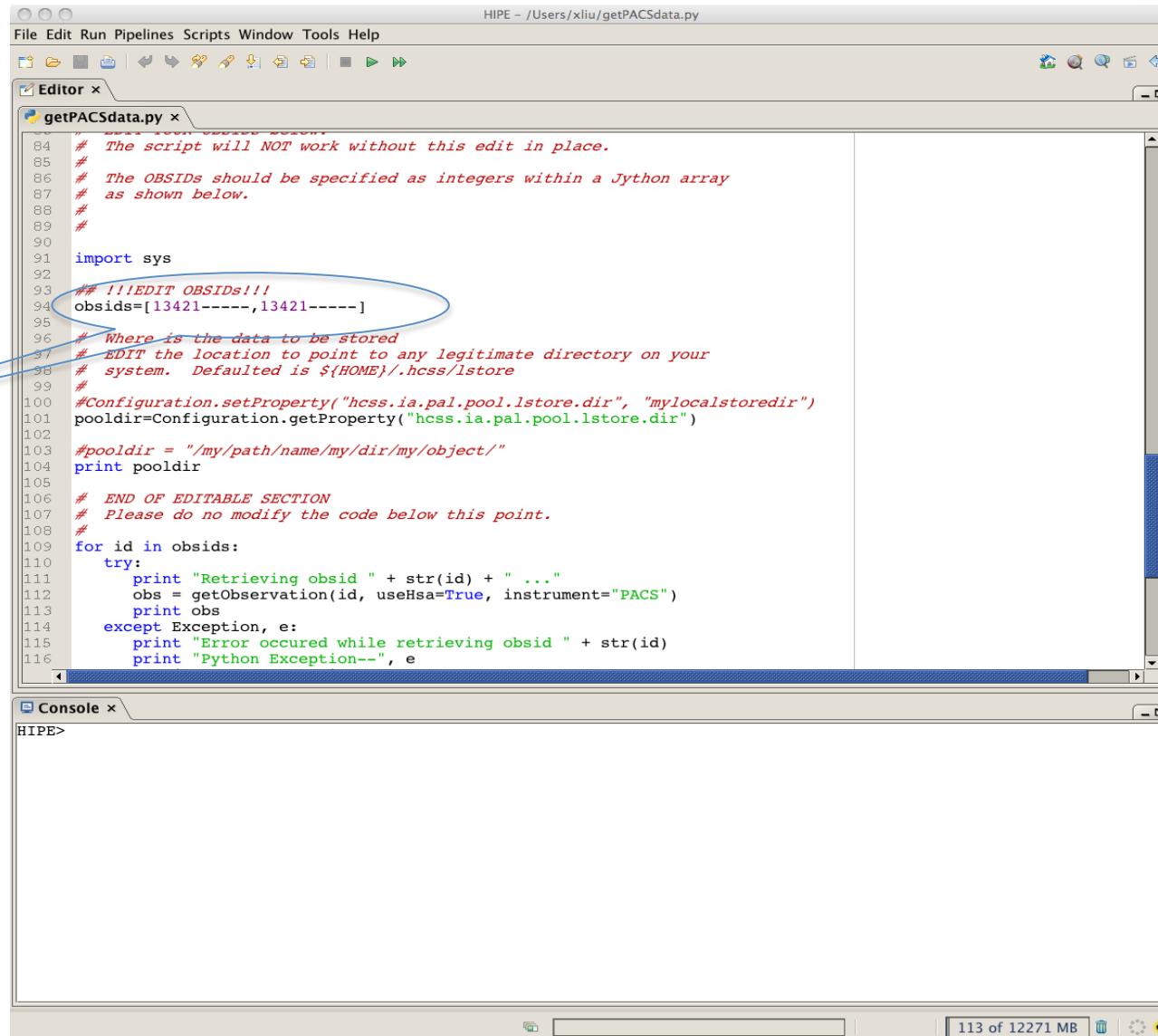
```
HIPE - /Users/xliu/getPACSdata.py
File Edit Run Pipelines Scripts Window Tools Help
Editor x
getPACSdata.py x
68 # Set your pool directory. This must be the same directory that you
69 # used to save the observation using getPACSdata.py
70 # pooldir=Configuration.getProperty("hcss.ia.pal.pool.lstore.dir")
71 #
72 # Read the observation context
73 # obs = getObservation(id, poolLocation=pooldir, instrument="PACS")
74 # s
75 # The obs variable contains the observation context to your observation
76 # Proceed with the rest of the reduction from here.
77 #
78 #
79 #
80 # START of Script
81 #
82 #
83 # EDIT YOUR OBSIDS below.
84 # The script will NOT work without this edit in place.
85 #
86 # The OBSIDS should be specified as integers within a Jython array
87 # as shown below.
88 #
89 #
90 #
91 import sys
92
93 ## !!EDIT OBSIDS!!
94 obsids=[13421-----,13421-----]
95
96 # Where is the data to be stored
97 # EDIT the location to point to any legitimate directory on your
98 # system. Defaulted is ${HOME}/.hcss/lstore
99 #
100 #Configuration.setProperty("hcss.ia.pal.pool.lstore.dir", "mylocalstoredir")
101 pooldir=Configuration.getProperty("hcss.ia.pal.pool.lstore.dir")
102
103 #pooldir = "/my/path/name/my/dir/my/object/"
104 print pooldir
105
106 # END OF EDITABLE SECTION
107 # Please do no modify the code below this point.
108 #
109 for id in obsids:
```




Step 3

Edit the script

Substitute
with your
own obsids
(Observation
ID).



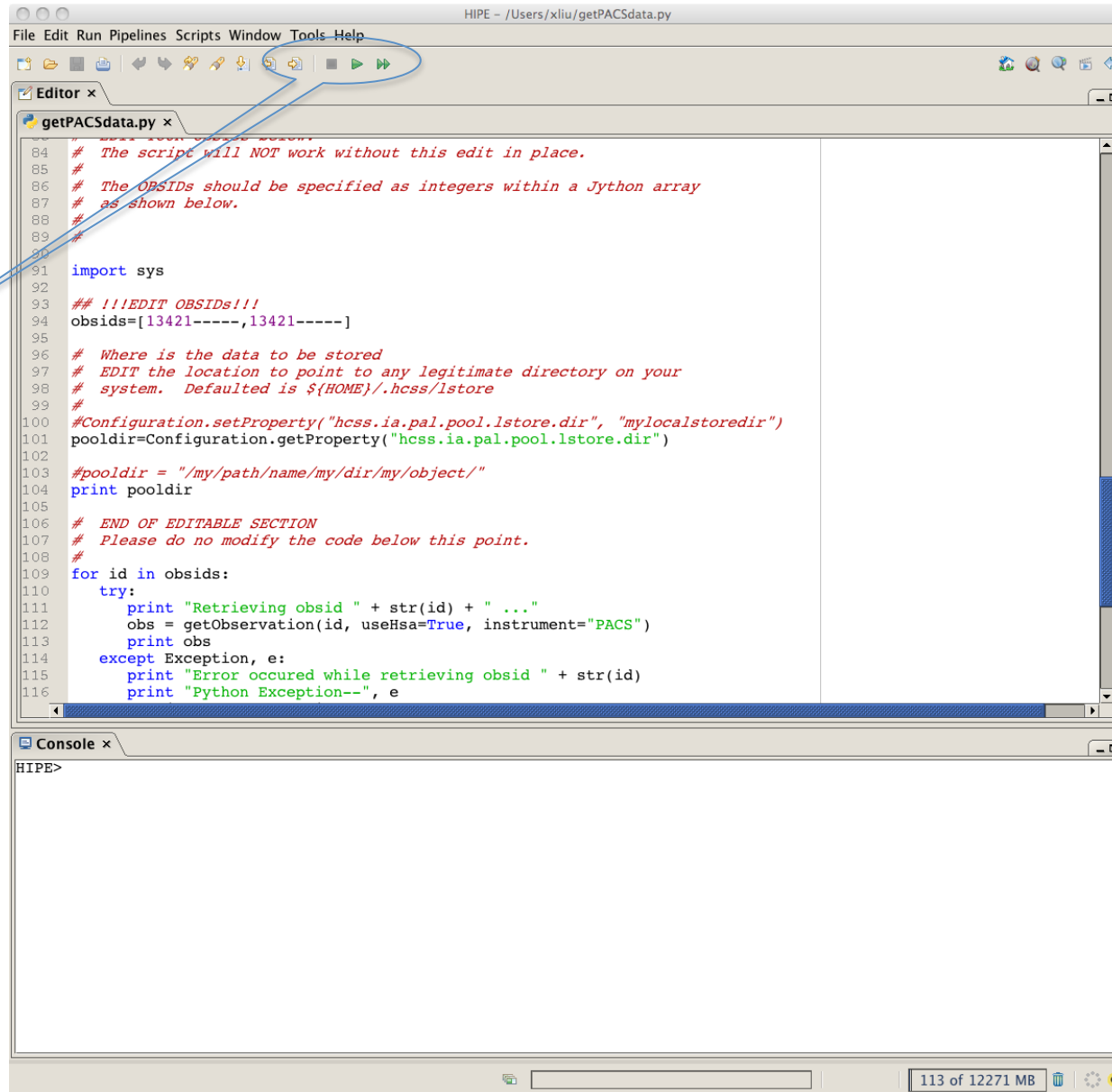
```
84 # The script will NOT work without this edit in place.
85 #
86 # The OBSIDs should be specified as integers within a Jython array
87 # as shown below.
88 #
89 #
90 import sys
91
92
93 ## !!!EDIT OBSIDs!!!
94 obsids=[13421-----,13421-----]
95
96 # Where is the data to be stored
97 # EDIT the location to point to any legitimate directory on your
98 # system. Defaulted is ${HOME}/.hcss/lstore
99 #
100 #Configuration.setProperty("hcss.ia.pal.pool.lstore.dir", "mylocalstoredir")
101 pooldir=Configuration.getProperty("hcss.ia.pal.pool.lstore.dir")
102
103 #pooldir = "/my/path/name/my/dir/my/object/"
104 print pooldir
105
106 # END OF EDITABLE SECTION
107 # Please do no modify the code below this point.
108 #
109 for id in obsids:
110     try:
111         print "Retrieving obsid " + str(id) + " ..."
112         obs = getObservation(id, useHsa=True, instrument="PACS")
113         print obs
114     except Exception, e:
115         print "Error ocured while retrieving obsid " + str(id)
116         print "Python Exception--", e
```



Step 4

Execute the script

Click the double arrow to execute the script all at once.

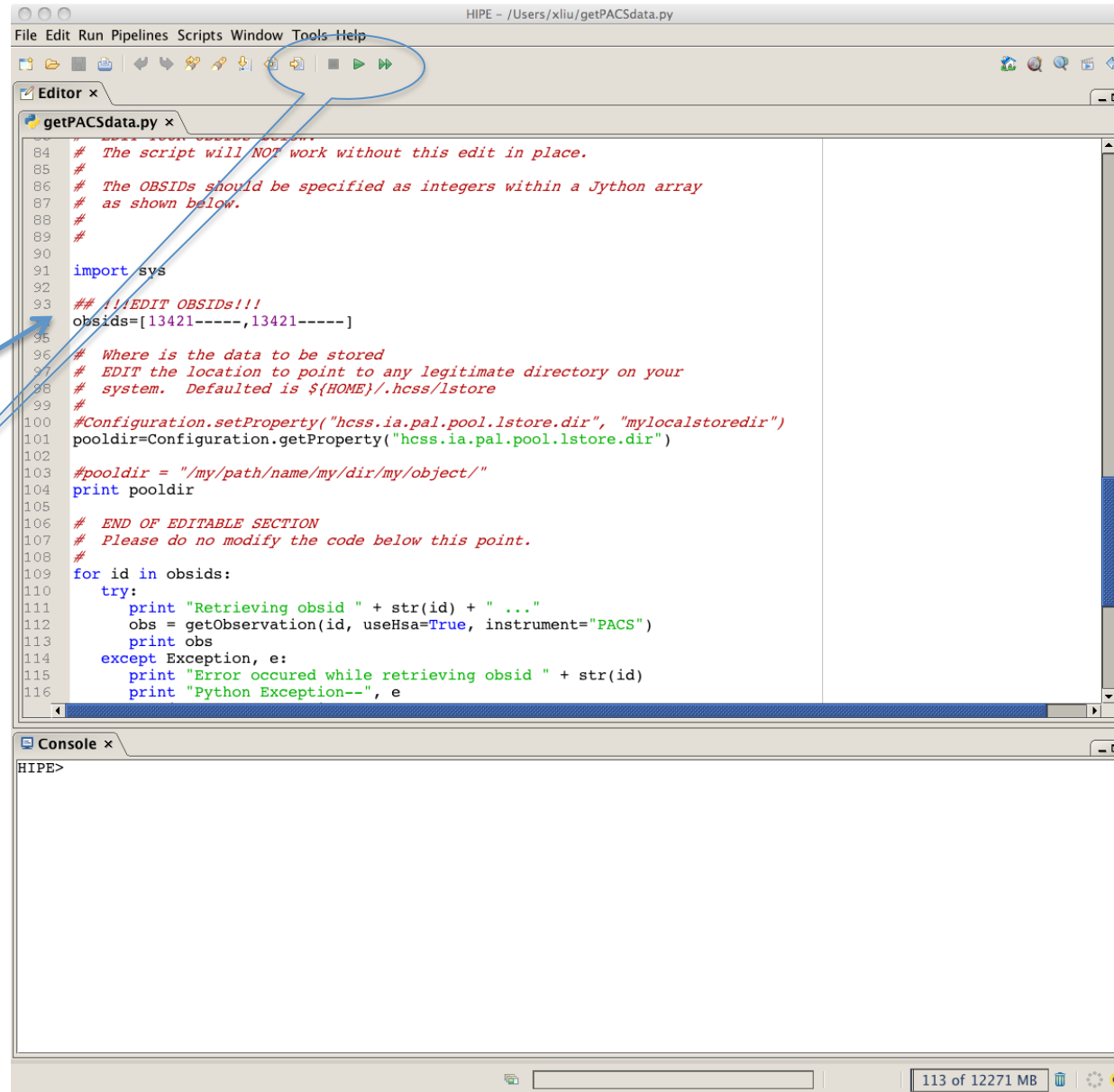


The screenshot shows a HIPE script editor window titled "HIPE - /Users/xliu/getPACsdata.py". The editor contains a Python script named "getPACsdata.py" with the following code:

```
84 # The script will NOT work without this edit in place.
85 #
86 # The OBSIDs should be specified as integers within a Jython array
87 # as shown below.
88 #
89 #
90 #
91 import sys
92
93 ## !!!EDIT OBSIDs!!!
94 obsids=[13421-----,13421-----]
95
96 # Where is the data to be stored
97 # EDIT the location to point to any legitimate directory on your
98 # system. Defaulted is ${HOME}/.hcss/lstore
99 #
100 #Configuration.setProperty("hcss.ia.pal.pool.lstore.dir", "mylocalstoredir")
101 pooldir=Configuration.getProperty("hcss.ia.pal.pool.lstore.dir")
102
103 #pooldir = "/my/path/name/my/dir/my/object/"
104 print pooldir
105
106 # END OF EDITABLE SECTION
107 # Please do no modify the code below this point.
108 #
109 for id in obsids:
110     try:
111         print "Retrieving obsid " + str(id) + " ..."
112         obs = getObservation(id, useHsa=True, instrument="PACS")
113         print obs
114     except Exception, e:
115         print "Error occured while retrieving obsid " + str(id)
116         print "Python Exception--", e
```

The script editor has a toolbar with a double arrow icon circled in blue. Below the editor is a console window titled "Console x" with the prompt "HIPE>". The system tray at the bottom right shows "113 of 12271 MB".

Alternatively,
the single
arrow
executes the
script one line
at a time.



The screenshot shows a Python script editor window titled "getPACsdata.py" within the HIPE environment. The script contains several lines of code, including comments and a loop. A blue circle highlights the "Run" button (a green play icon) in the toolbar. A blue arrow points from the text on the left to the "Run" button. Another blue arrow points from the text on the left to the first line of the script, which is the first line of the loop: `for id in obsids:`. The console window below the editor is empty, indicating that the script has not yet been executed.

```
84 # The script will NOT work without this edit in place.
85 #
86 # The OBSIDs should be specified as integers within a Jython array
87 # as shown below.
88 #
89 #
90
91 import sys
92
93 ## !!EDIT OBSIDS!!
94 obsids=[13421-----,13421-----]
95
96 # Where is the data to be stored
97 # EDIT the location to point to any legitimate directory on your
98 # system. Defaulted is ${HOME}/.hcss/lstore
99 #
100 #Configuration.setProperty("hcss.ia.pal.pool.lstore.dir", "mylocalstoredir")
101 pooldir=Configuration.getProperty("hcss.ia.pal.pool.lstore.dir")
102
103 #pooldir = "/my/path/name/my/dir/my/object/"
104 print pooldir
105
106 # END OF EDITABLE SECTION
107 # Please do no modify the code below this point.
108 #
109 for id in obsids:
110     try:
111         print "Retrieving obsid " + str(id) + " ..."
112         obs = getObservation(id, useHsa=True, instrument="PACS")
113         print obs
114     except Exception, e:
115         print "Error occured while retrieving obsid " + str(id)
116         print "Python Exception--", e
```



Check # 1:

Check to see if the local stores have been created. Look into the *pooldir* directory (defaulted to \$HOME/.hcss/lstore), there should be sub-directories named as obsids if the execution was successful.

An example of a local store directory:

```
queen:/Users/xliu/.hcss/lstore%pwd  
/Users/xliu/.hcss/lstore
```

```
queen:/Users/xliu/.hcss/lstore%ls -al  
drwxr-xr-x 13 xliu nhsc 442 Oct 21 14:36 ./  
drwxr-xr-x 10 xliu nhsc 340 Jan 19 11:13 ../  
drwxr-xr-x 49 xliu nhsc 1666 Oct 13 14:38 1342187067/  
drwxr-xr-x 49 xliu nhsc 1666 Oct 13 15:28 1342187068/
```



Check # 1: -- continued

[queen:/Users/xliu/.hcscs/lstore%ls 1342187067](#)
[herchel.ia.dataset.Product](#)
[herchel.ia.dataset.image.SimpleImage](#)
[herchel.ia.obs.ObservationContext](#)
[herchel.ia.obs.QPLog](#)
[herchel.ia.obs.auxiliary.AuxiliaryContext](#)
[herchel.ia.obs.auxiliary.eventslog.EventsLogProduct](#)
[herchel.ia.obs.auxiliary.missingtm.MissingTmProduct](#)
[herchel.ia.obs.auxiliary.ool.OolProduct](#)
[herchel.ia.obs.auxiliary.orbitephem.OrbitEphemerisProduct](#)
[herchel.ia.obs.auxiliary.pointing.PointingProduct](#)
[herchel.ia.obs.auxiliary.pointing.SiamProduct](#)
[herchel.ia.obs.auxiliary.srem.SremCalProduct](#)
[herchel.ia.obs.auxiliary.srem.SremRawProduct](#)
[herchel.ia.obs.auxiliary.tch.TeleCommandHistProduct](#)
[herchel.ia.obs.auxiliary.timecorr.TimeCorrProduct](#)
[herchel.ia.obs.auxiliary.uplink.UplinkProduct](#)
[herchel.ia.obs.quality.QualityContext](#)
[herchel.ia.pal.ListContext](#)
[herchel.ia.pal.MapContext](#)
[herchel.ia.qcp.QCLogProduct](#)
[herchel.pacs.signal.Frames](#)
[herchel.pacs.signal.PacsDmcProduct](#)
[herchel.pacs.signal.SlicedFrames](#)



Within HIPE, the following commands show the Application Programming Interfaces (API) for functions `getObservation` and `saveObservation`:

```
HIPE> print getObservation  
HIPE> print saveObservation
```

To load data from a local store into HIPE, do the following:

```
HIPE> obs = getObservation(obsid,  
poolName=poolname, poolLocation=pooldir)
```

By default, the pool location is `$HOME/.hcss/lstore` and the pool name is the `obsid`.