



# **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***

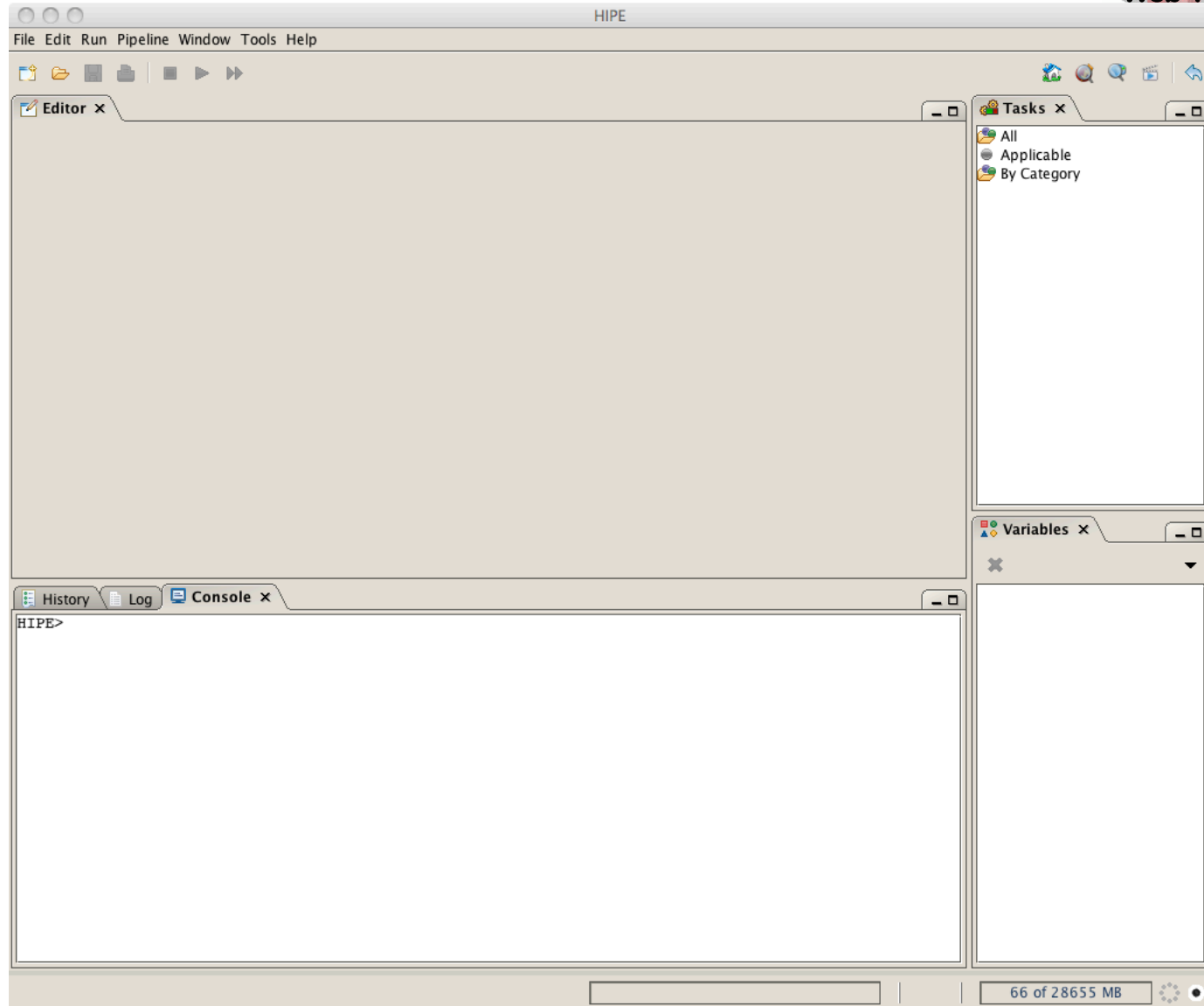


# Step 1

## Start HIPE



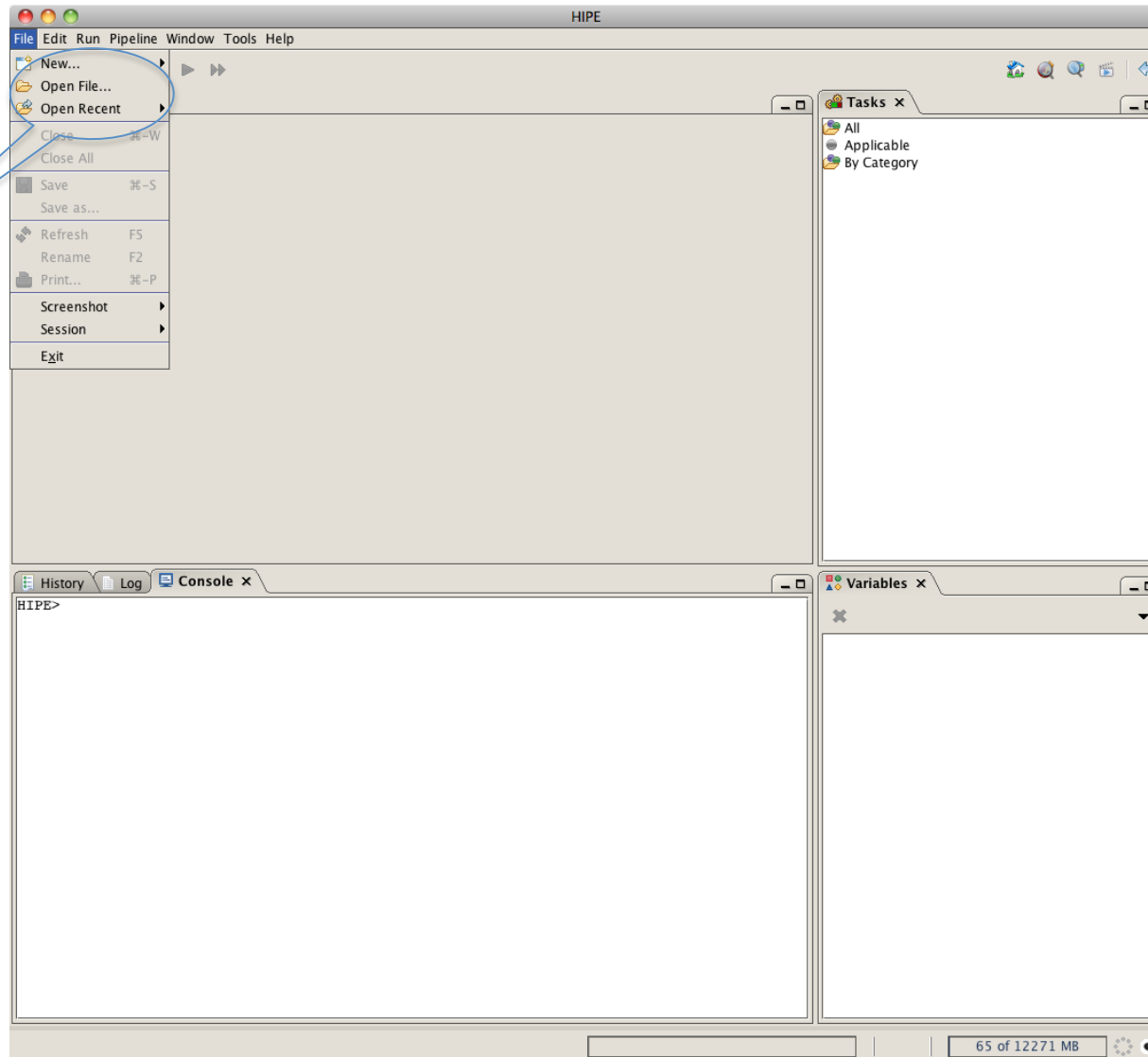
HIPE on startup



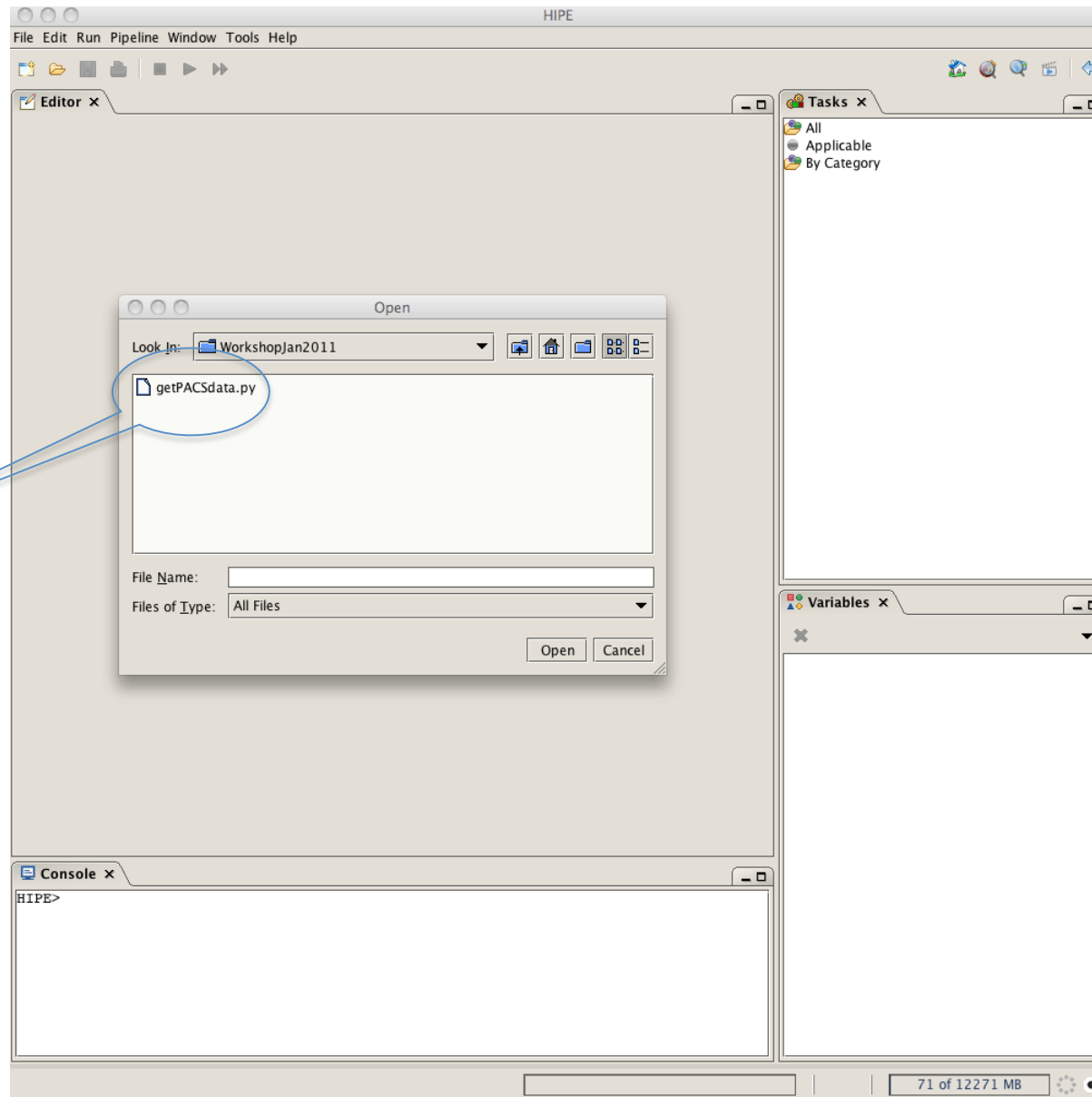


# Step 2

## Load file getPACSdata.py

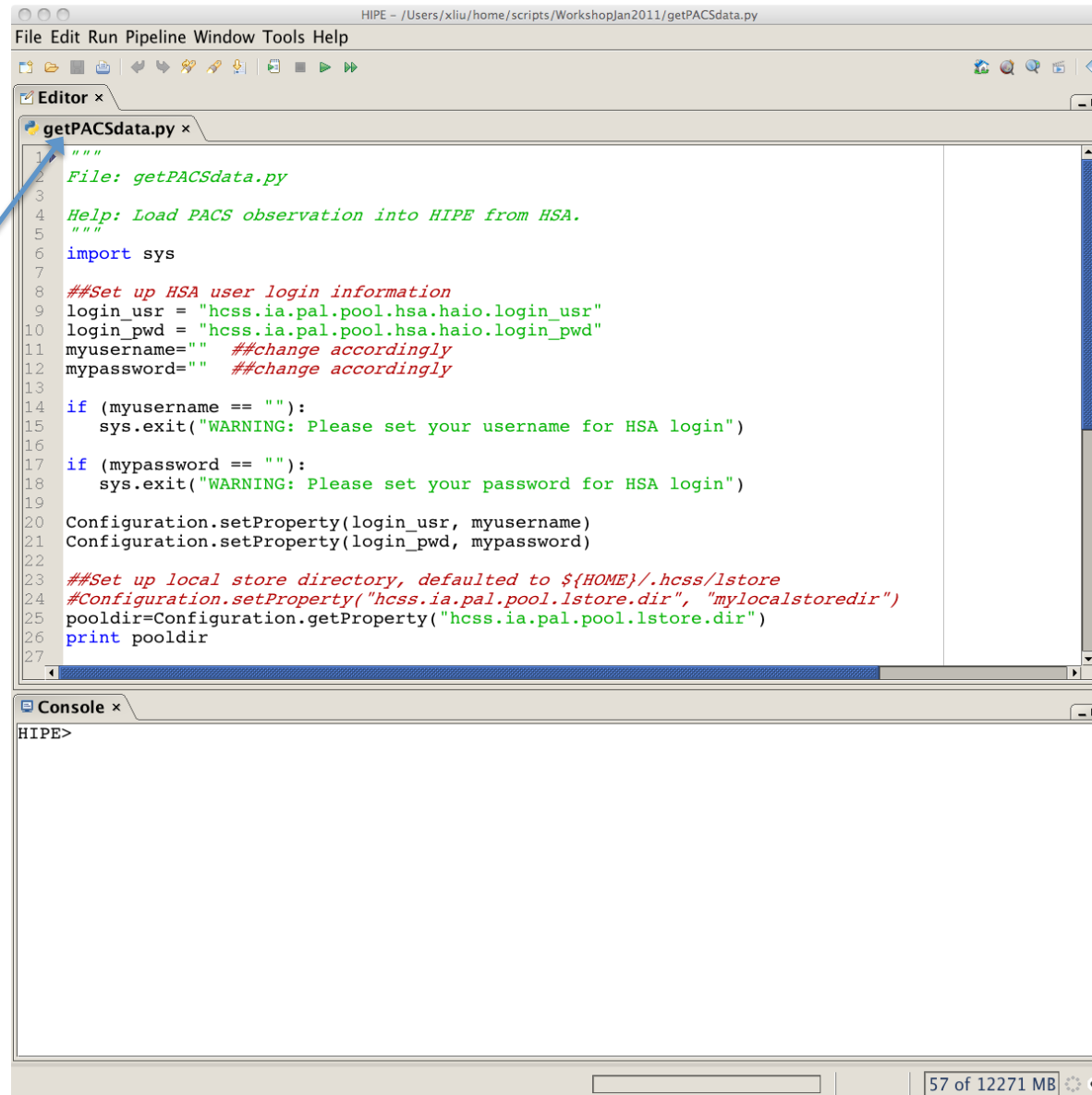


From the  
File Menu  
Select  
Open File...



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/home/scripts/WorkshopJan2011/getPACSdata.py
File Edit Run Pipeline Window Tools Help
Editor x
getPACSdata.py x
1 """
2 File: getPACSdata.py
3
4 Help: Load PACS observation into HIPE from HSA.
5 """
6 import sys
7
8 ##Set up HSA user login information
9 login_usr = "hcss.ia.pal.pool.hsa.haio.login_usr"
10 login_pwd = "hcss.ia.pal.pool.hsa.haio.login_pwd"
11 myusername="" ##change accordingly
12 mypassword="" ##change accordingly
13
14 if (myusername == ""):
15     sys.exit("WARNING: Please set your username for HSA login")
16
17 if (mypassword == ""):
18     sys.exit("WARNING: Please set your password for HSA login")
19
20 Configuration.setProperty(login_usr, myusername)
21 Configuration.setProperty(login_pwd, mypassword)
22
23 ##Set up local store directory, defaulted to ${HOME}/.hcss/lstore
24 #Configuration.setProperty("hcss.ia.pal.pool.lstore.dir", "mylocalstoredir")
25 pooldir=Configuration.getProperty("hcss.ia.pal.pool.lstore.dir")
26 print pooldir
27
Console x
HIPE>
```

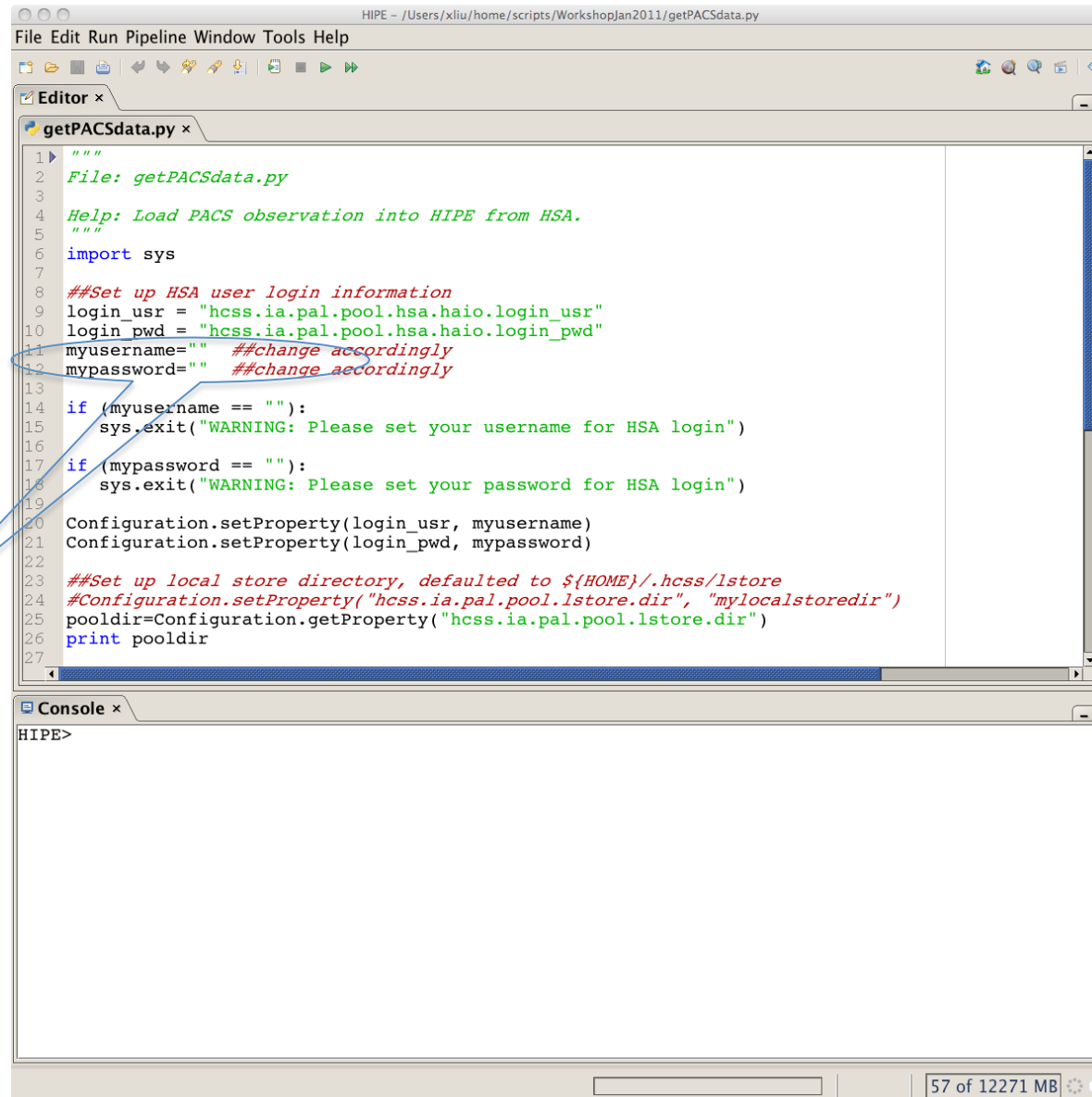




# Step 3

## Edit the script

Add your own username and password for HSA login between the double quotes.

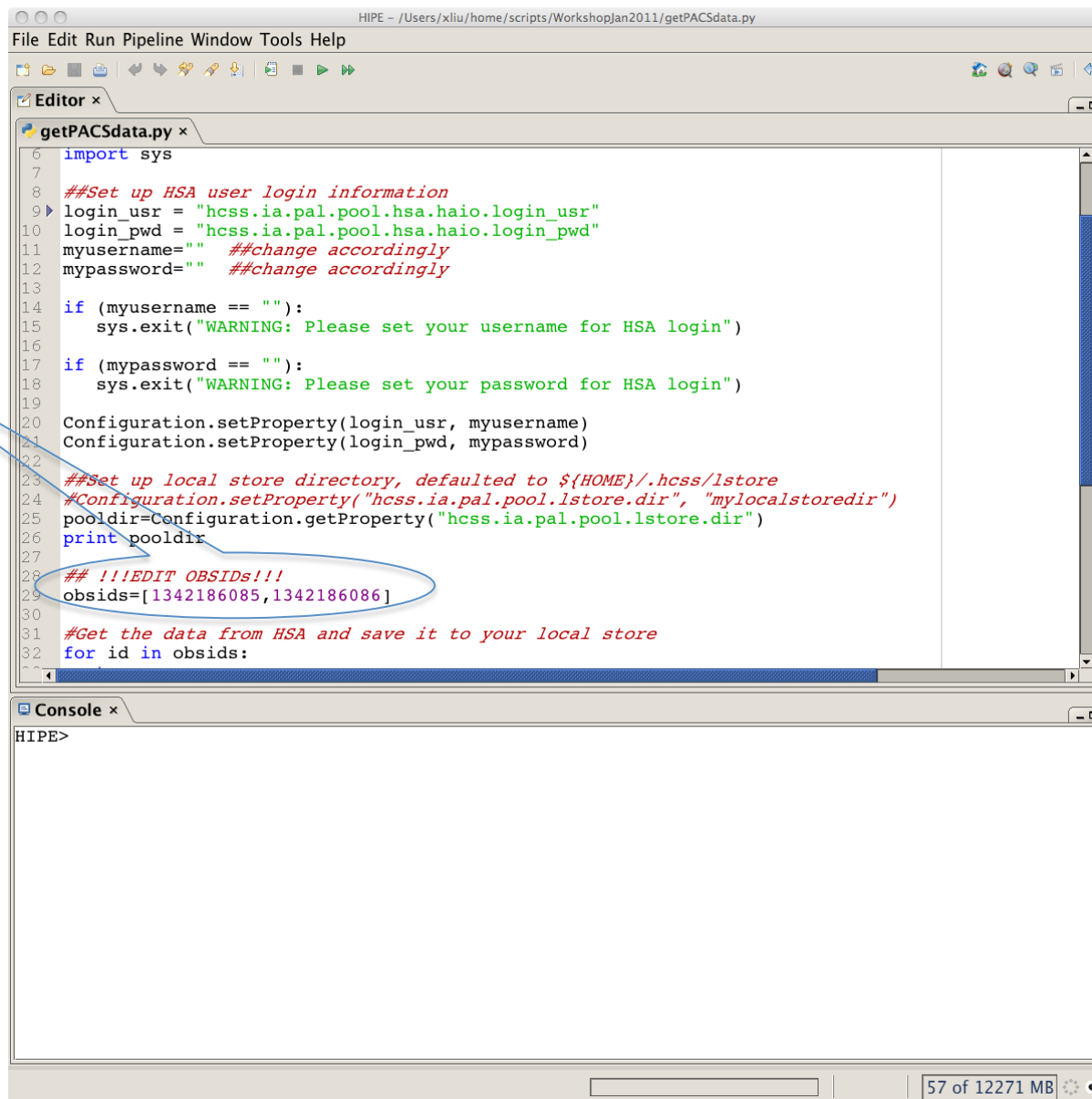


```
1 """
2 File: getPACSdata.py
3
4 Help: Load PACS observation into HIPE from HSA.
5 """
6 import sys
7
8 ##Set up HSA user login information
9 login_usr = "hcss.ia.pal.pool.hsa.haio.login_usr"
10 login_pwd = "hcss.ia.pal.pool.hsa.haio.login_pwd"
11 myusername="" ##change accordingly
12 mypassword="" ##change accordingly
13
14 if (myusername == ""):
15     sys.exit("WARNING: Please set your username for HSA login")
16
17 if (mypassword == ""):
18     sys.exit("WARNING: Please set your password for HSA login")
19
20 Configuration.setProperty(login_usr, myusername)
21 Configuration.setProperty(login_pwd, mypassword)
22
23 ##Set up local store directory, defaulted to ${HOME}/hcss/lstore
24 #Configuration.setProperty("hcss.ia.pal.pool.lstore.dir", "mylocalstoredir")
25 pooldir=Configuration.getProperty("hcss.ia.pal.pool.lstore.dir")
26 print pooldir
27
```

HIPE>

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Substitute  
with your  
own obsids  
(Observation  
ID).



```
HIPE - /Users/xliu/home/scripts/WorkshopJan2011/getPACSdata.py
File Edit Run Pipeline Window Tools Help

Editor x
getPACSdata.py x
6 import sys
7
8 ##Set up HSA user login information
9 login_usr = "hcsc.ia.pal.pool.hsa.haio.login_usr"
10 login_pwd = "hcsc.ia.pal.pool.hsa.haio.login_pwd"
11 myusername="" ##change accordingly
12 mypassword="" ##change accordingly
13
14 if (myusername == ""):
15     sys.exit("WARNING: Please set your username for HSA login")
16
17 if (mypassword == ""):
18     sys.exit("WARNING: Please set your password for HSA login")
19
20 Configuration.setProperty(login_usr, myusername)
21 Configuration.setProperty(login_pwd, mypassword)
22
23 ##Set up local store directory, defaulted to ${HOME}/.hcsc/lstore
24 ##Configuration.setProperty("hcsc.ia.pal.pool.lstore.dir", "mylocalstoredir")
25 pooldir=Configuration.getProperty("hcsc.ia.pal.pool.lstore.dir")
26 print pooldir
27
28 ## !!!EDIT OBSIDS!!!
29 obsids=[1342186085,1342186086]
30
31 ##Get the data from HSA and save it to your local store
32 for id in obsids:
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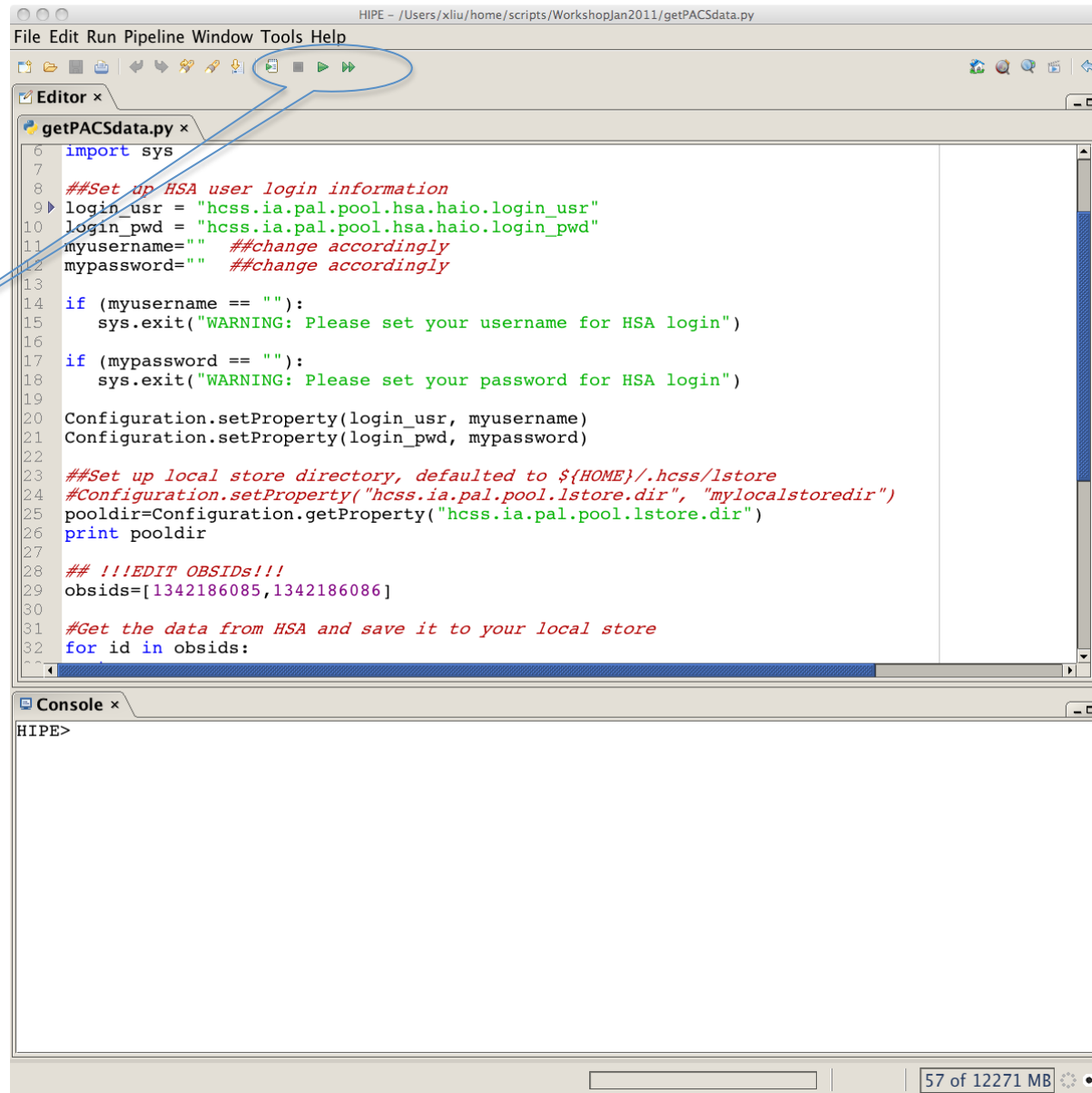
Console x
HIPE>
```



# Step 4

## Execute the script

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



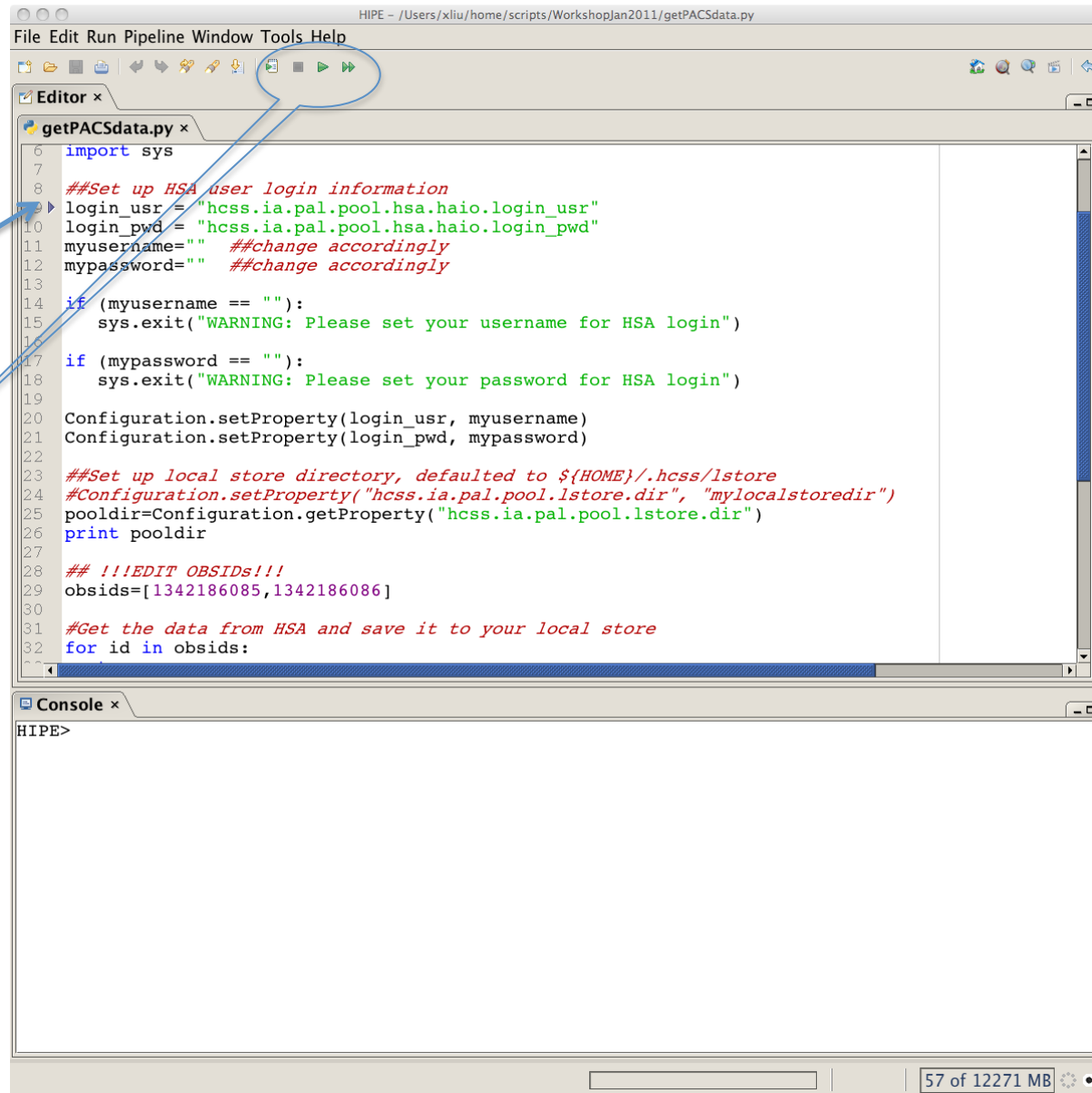
```
HIPE - /Users/xliu/home/scripts/WorkshopJan2011/getPACSdata.py
File Edit Run Pipeline Window Tools Help
Editor x
getPACSdata.py x
6 import sys
7
8 ##Set up HSA user login information
9 login_usr = "hcass.ia.pal.pool.hsa.haio.login_usr"
10 login_pwd = "hcass.ia.pal.pool.hsa.haio.login_pwd"
11 myusername="" ##change accordingly
12 mypassword="" ##change accordingly
13
14 if (myusername == ""):
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19
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21 Configuration.setProperty(login_pwd, mypassword)
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23 ##Set up local store directory, defaulted to ${HOME}/.hcass/lstore
24 #Configuration.setProperty("hcass.ia.pal.pool.lstore.dir", "mylocalstoredir")
25 pooldir=Configuration.getProperty("hcass.ia.pal.pool.lstore.dir")
26 print pooldir
27
28 ## !!!EDIT OBSIDS!!!
29 obsids=[1342186085,1342186086]
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31 #Get the data from HSA and save it to your local store
32 for id in obsids:
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```

Console x  
HIPE>

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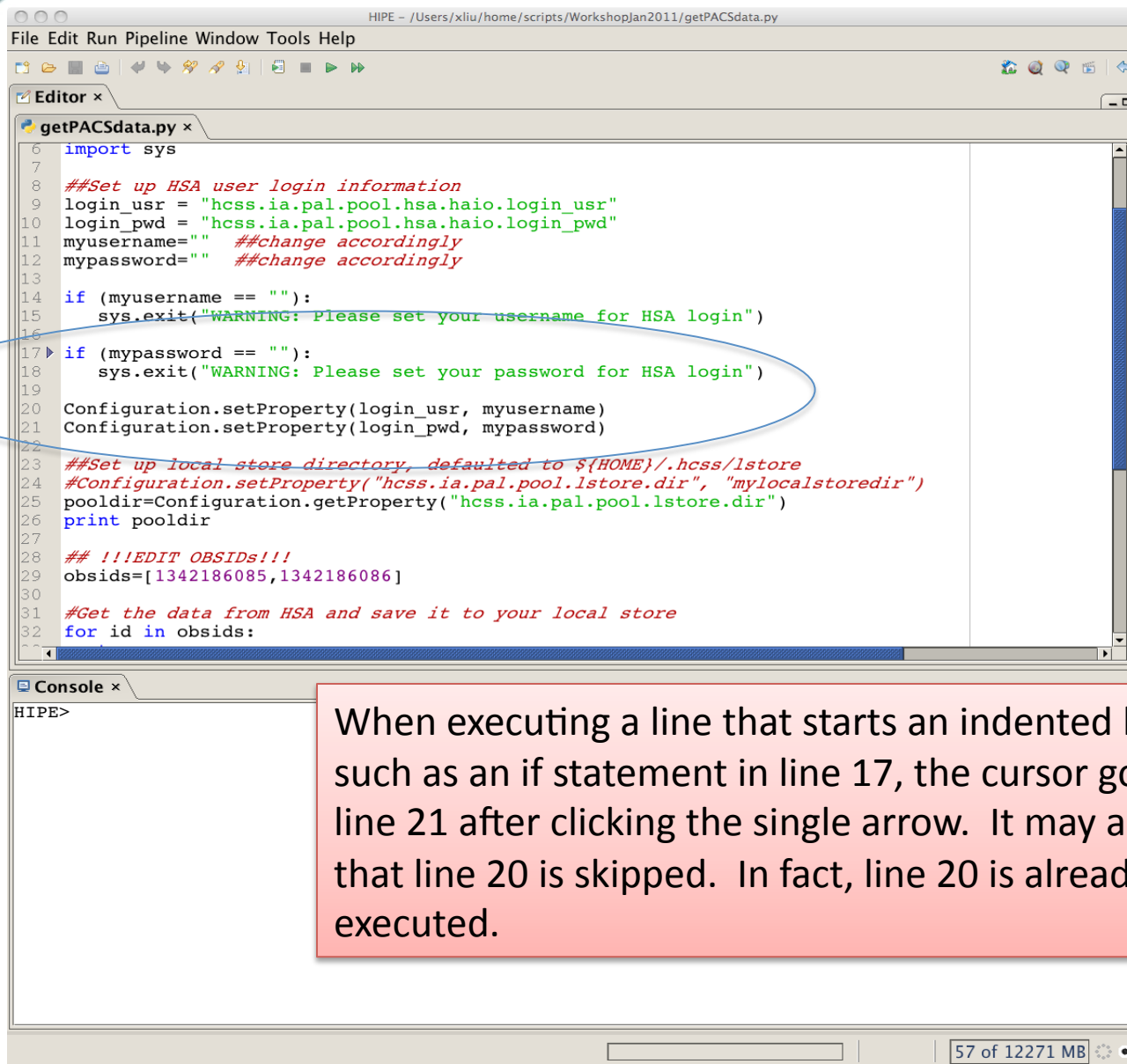
Alternatively,  
the single  
arrow  
executes the  
script one line  
at a time.



```
HIPE - /Users/xliu/home/scripts/WorkshopJan2011/getPACSdata.py
File Edit Run Pipeline Window Tools Help
Editor x
getPACSdata.py x
6 import sys
7
8 ##Set up HSA user login information
9 login_usr = "hcass.ia.pal.pool.hsa.haio.login_usr"
10 login_pwd = "hcass.ia.pal.pool.hsa.haio.login_pwd"
11 myusername="" ##change accordingly
12 mypassword="" ##change accordingly
13
14 if (myusername == ""):
15     sys.exit("WARNING: Please set your username for HSA login")
16
17 if (mypassword == ""):
18     sys.exit("WARNING: Please set your password for HSA login")
19
20 Configuration.setProperty(login_usr, myusername)
21 Configuration.setProperty(login_pwd, mypassword)
22
23 ##Set up local store directory, defaulted to ${HOME}/.hcass/lstore
24 ##Configuration.setProperty("hcass.ia.pal.pool.lstore.dir", "mylocalstoredir")
25 pooldir=Configuration.getProperty("hcass.ia.pal.pool.lstore.dir")
26 print pooldir
27
28 ## !!!EDIT OBSIDS!!!
29 obsids=[1342186085,1342186086]
30
31 ##Get the data from HSA and save it to your local store
32 for id in obsids:
```

Console x  
HIPE>

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```
HIPE - /Users/xliu/home/scripts/WorkshopJan2011/getPACSdata.py
File Edit Run Pipeline Window Tools Help
Editor x
getPACSdata.py x
6 import sys
7
8 ##Set up HSA user login information
9 login_usr = "hcass.ia.pal.pool.hsa.haio.login_usr"
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11 myusername="" ##change accordingly
12 mypassword="" ##change accordingly
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14 if (myusername == ""):
15     sys.exit("WARNING: Please set your username for HSA login")
16
17 ▶ if (mypassword == ""):
18     sys.exit("WARNING: Please set your password for HSA login")
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20 Configuration.setProperty(login_usr, myusername)
21 Configuration.setProperty(login_pwd, mypassword)
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23 ##Set up local store directory, defaulted to ${HOME}/.hcass/lstore
24 #Configuration.setProperty("hcass.ia.pal.pool.lstore.dir", "mylocalstoredir")
25 pooldir=Configuration.getProperty("hcass.ia.pal.pool.lstore.dir")
26 print pooldir
27
28 ## !!!EDIT OBSIDS!!!
29 obsids=[1342186085,1342186086]
30
31 #Get the data from HSA and save it to your local store
32 for id in obsids:
```

Console x  
HIPE>

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When executing a line that starts an indented block such as an if statement in line 17, the cursor goes to line 21 after clicking the single arrow. It may appear that line 20 is skipped. In fact, line 20 is already executed.

```
HIPE -- /Users/xliu/home/scripts/WorkshopJan2011/getPACSdata.py
File Edit Run Pipeline Window Tools Help
Editor x
*getPACSdata.py x
6 import sys
7
8 ##Set up HSA user login information
9 login_usr = "hcss.ia.pal.pool.hsa.haio.login_usr"
10 login_pwd = "hcss.ia.pal.pool.hsa.haio.login_pwd"
11 myusername="" ##change accordingly
12 mypassword="" ##change accordingly
13
14 if (myusername == ""):
15     sys.exit("WARNING: Please set your username for HSA login")
16
17 if (mypassword == ""):
18     sys.exit("WARNING: Please set your password for HSA login")
19 pass
20
21 Configuration.setProperty(login_usr, myusername)
22 Configuration.setProperty(login_pwd, mypassword)
23
24 ##Set up local store directory, defaulted to ${HOME}/.hcss/lstore
25 #Configuration.setProperty("hcss.ia.pal.pool.lstore.dir", "mylocalstoredir")
26 pooldir=Configuration.getProperty("hcss.ia.pal.pool.lstore.dir")
27 print pooldir
28
29 ## !!!EDIT OBSIDS!!!
30 obsids=[1342186085,1342186086]
31
32 #Get the data from HSA and save it to your local store
```

HIPE>

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To avoid the problem described in previous page, add a “pass” statement after the block as in line 19. A “pass” statement does nothing. It’s a NoOp statement.





## **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.oof.OofProduct](#)  
[herchel.ia.obs.auxiliary.orbitemphem.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.__doc__  
HIPE> print saveObservation.__doc__
```

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`.