

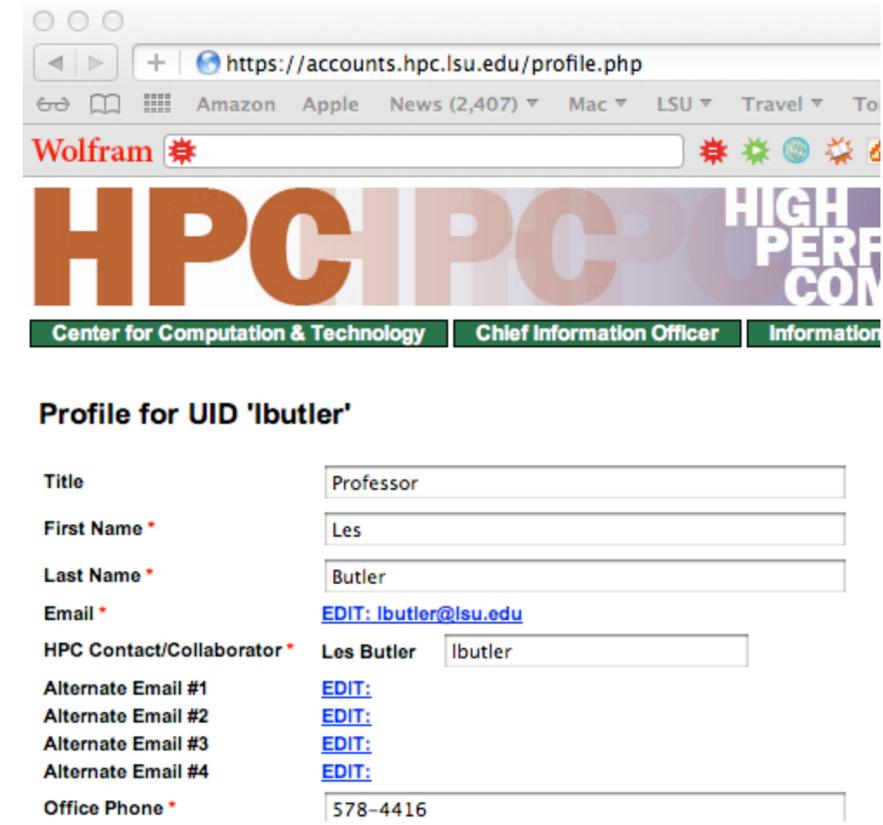
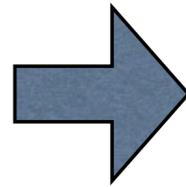
# Les Butler's experience with VisIt on HPC Philip

VisIt display through X11

(1) Is my account active? Yes



- LONI: [allocations.loni.org](http://allocations.loni.org)
- LSU HPC: [accounts.hpc.lsu.edu](http://accounts.hpc.lsu.edu)
- This is where you
  - Request accounts
  - Request and manage allocations (for LONI only)
  - Update user profile
  - Reset password



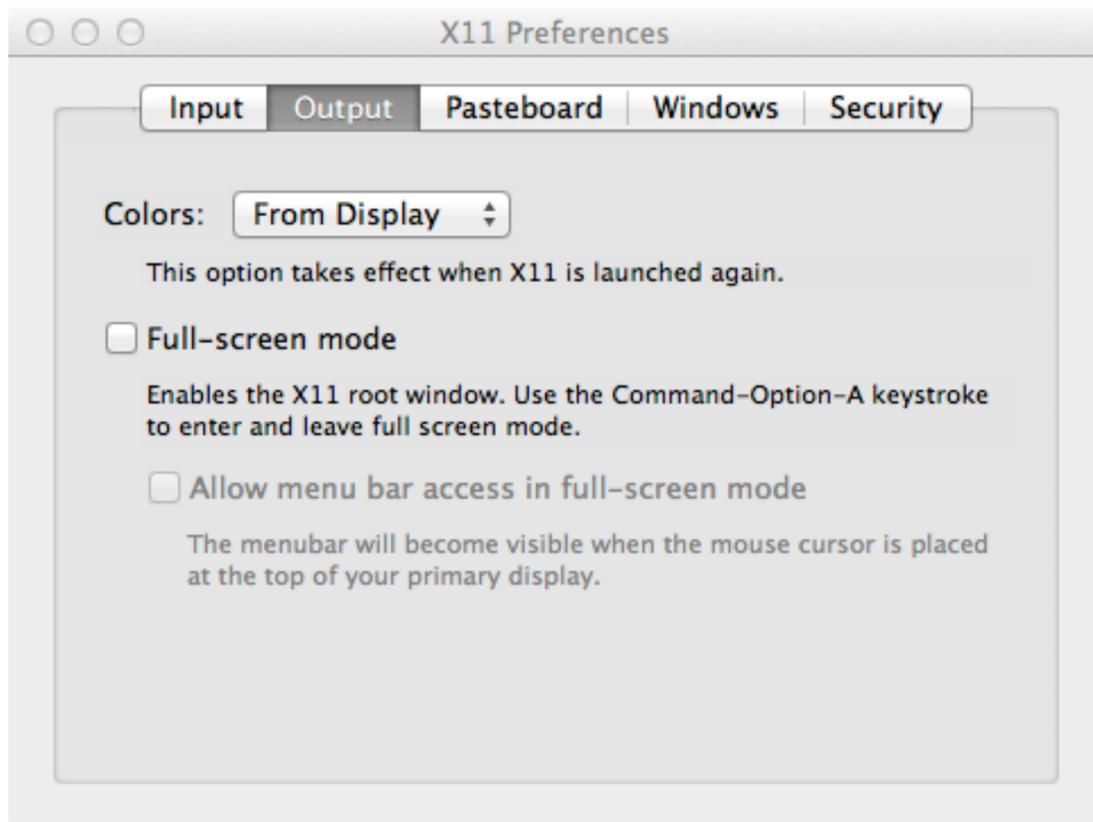
Les is using bash shell

(2) Where is my X11 application?

It is in Macintosh / Applications / Utilities / X11

(3) Do I change from default preferences? No

I did not add “full-screen mode”, at least not for long.



```
bash-3.2$ ssh -X lbutler@philip.hpc.lsu.edu
The authenticity of host 'philip.hpc.lsu.edu (204.90.42.200)' can't be established.
RSA key fingerprint is eb:96:c3:7a:0f:ad:d4:1d:6a:83:0a:ac:2a:69:4b:2b.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'philip.hpc.lsu.edu,204.90.42.200' (RSA) to the list of known hosts.
lbutler@philip.hpc.lsu.edu's password:
Last login: Fri Mar 23 12:25:47 2012 from 90-27-e4-f9-1f-25.wlan.lsu.edu
*****
*
* Welcome to Philip. This cluster is for the use of the LSU
* community and collaborators. Our policies may be found at
* http://www.hpc.lsu.edu. If you have questions or need assistance
* please contact us at sys-help@loni.org
*
*****

30-May-2011

*****

The /home volume is over 94% full. Please remove remove any unnecessary
files from your /home directory.
*****

06-March-2012

*****

From March 26 - March 31, 15 nodes of philip will be dedicated for students
taking a visualization class offered through the Dept. of Chemistry. Please
make note of these dates. As a reminder, the LONI clusters are also available
for those involved in research at LSU. If you would like help getting started
on the LONI clusters, please send email to sys-help@loni.org.
*****
[lbutler@philip1 ~]$
```

(4) Can I log in to Philip? Yes

Turn on X11

At prompt, type `ssh -X lbutler@philip.hpc.lsu.edu`

For first time, accept philip as a “known host” by typing `yes`

Note: `y` or `Y` is not good enough.

```
lbutler@philip:~$ ssh -X lbutler@philip.hpc.lsu.edu
bash-3.2$ ssh -X lbutler@philip.hpc.lsu.edu
The authenticity of host 'philip.hpc.lsu.edu (204.90.42.200)' can't be established.
RSA key fingerprint is eb:96:c3:7a:0f:ad:d4:1d:6a:83:0a:ac:2a:69:4b:2b.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'philip.hpc.lsu.edu,204.90.42.200' (RSA) to the list of known hosts.
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*                                                                 *
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on the LONI clusters, please send email to sys-help@loni.org.
*****
[lbutler@philip1 ~]$
```

(5) What are the contents of my home directory on Philip?

Useful commands are:

`ls` list directory contents

`ls -al` list all contents (do not skip entries starting with `.`) and list the author of each file

```
[lbutler@philip1 ~]$ man ls
[lbutler@philip1 ~]$
[lbutler@philip1 ~]$
[lbutler@philip1 ~]$
[lbutler@philip1 ~]$ ls
[lbutler@philip1 ~]$
[lbutler@philip1 ~]$
[lbutler@philip1 ~]$ ls -al
```

Not much in this home directory.

Well, a few hidden files. The important file is `.soft`

```
total 104
drwx----- 6 lbutler Users 4096 Mar 27 10:26 .
drwxr-xr-x 274 root root 12288 Mar 26 12:42 ..
-rw----- 1 lbutler Users 3210 Mar 27 10:26 .bash_history
-rw----- 1 lbutler Users 95 Mar 26 16:38 .bash_history3
-rw----- 1 lbutler Users 33 Mar 23 12:15 .bash_logout
-rw----- 1 lbutler Users 176 Mar 23 12:15 .bash_profile
-rw----- 1 lbutler Users 124 Mar 23 12:15 .bashrc
-rw----- 1 lbutler Users 515 Mar 23 12:15 .emacs
drwx----- 4 lbutler Users 4096 Mar 23 12:15 .mozilla
-rw-r--r-- 1 lbutler Users 257 Mar 26 16:15 .soft
-rw-r--r-- 1 lbutler Users 14557 Mar 26 16:16 .soft.cache.csh
-rw-r--r-- 1 lbutler Users 15261 Mar 26 16:16 .soft.cache.sh
drwx----- 2 lbutler Users 4096 Mar 23 12:15 .ssh
drwx----- 2 lbutler Users 4096 Mar 23 12:15 .subversion
-rw----- 1 lbutler Users 611 Mar 26 16:15 .viminfo
drwxr-xr-x 4 lbutler Users 4096 Mar 26 16:36 .visit
-rw----- 1 lbutler Users 267 Mar 27 10:26 .Xauthority
-rw----- 1 lbutler Users 658 Mar 23 12:15 .zshrc
[lbutler@philip1 ~]$
```

(6) What are the contents of the file `.soft` ?

Useful commands are:

`more` a file perusal filter for crt viewing

```
[lbutler@philip1 ~]$ man more
[lbutler@philip1 ~]$
[lbutler@philip1 ~]$ more .soft
#
# This is the .soft file.
# It is used to customize your environment by setting up environment
# variables such as PATH and MANPATH.
# To learn what can be in this file, use 'man softenv'.
#
+visit-2.3.2
+mpich2-1.4.1p1-gcc-4.3.2
+gcc-4.3.2
#
@default
[lbutler@philip1 ~]$
```

Just like Le Yan / Alex lecture, slides #20, #39

(7) BTW. At first login, `.soft` did not have the `+visit-2.3.2` and other keys. I used the vi editor to enter keys for visit, mpich, and gcc into the `.soft` file. Alex has done the same for all students in this class.

(8) The instructions on slide #39 include.

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Useful commands are:

mkdir make directories

cd change directory

pwd print working directory (usually current directory).

- **Copy the host profile to your home directory**  
– `cp /usr/local/packages/visit/host_philip.xml ~/.visit/hosts/`

So, I typed (note: the dollar sign is the prompt character from Philip. I didn't type it).

```
$ mkdir .visit
```

```
$ cd .visit
```

```
$ pwd
```

and Philip printed `/home/lbutler/.visit`

```
$ mkdir hosts
```

```
$ cd hosts
```

```
$ pwd
```

and Philip printed `/home/lbutler/.visit/hosts`

```
$ cp /usr/local/packages/visit/host_philip.xml ~/.visit/hosts/
```

```
$ ls
```

and Philip printed `host_philip.xml`

(9) Do I have any data to visualize? \*.h5 would be nice or \*.bin, \*.bov would be ok

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through X

The data is on tezpur which is accessible from Philip. Our class data is in /project/lbutler

```
[lbutler@philip1 lbutler]$ cd /project/lbutler/
[lbutler@philip1 lbutler]$ ls -l
total 24
drwxr-sr-x  2 lbutler h3035 4096 Jan 12  2011 Avizo
drwxr-sr-x  6 zodhomb h3035 4096 Feb 18  2011 biology
drwxrwxrwx  6 kham    h3035 4096 Mar 16 09:03 cand
drwxr-sr-x  2 jinghua h3035 4096 Mar 12 15:06 class-data-spring12
drwxr-sr-x 11 lbutler h3035 4096 Jan 13  2011 data_materials
drwxr-sr-x  2 lbutler h3035 4096 Jan 28 14:43 hw3
```

I typed:

```
cd /project/lbutler
```

```
ls -l
```

```
[lbutler@philip1 lbutler]$ cd data_materials
[lbutler@philip1 data_materials]$ ls -l
total 36
drwxr-sr-x 2 lbutler h3035 4096 Mar 10 14:05 basalt
drwxr-sr-x 3 lbutler h3035 4096 Jan 21  2011 battery
drwxr-sr-x 2 lbutler h3035 4096 Jan 24  2011 bullet
drwxr-sr-x 3 lbutler h3035 4096 Feb 20  2011 hydrogen
drwxr-sr-x 2 lbutler h3035 4096 Mar 26 16:28 MAS_rotor
drwxr-sr-x 3 lbutler h3035 4096 Jan 25  2011 migmatite
drwxr-sr-x 2 lbutler h3035 4096 Feb  7 10:13 polymer_blend
drwxr-sr-x 3 lbutler h3035 4096 Jan 21  2011 polymer_constantheat
drwxr-sr-x 2 lbutler h3035 4096 Jan 26  2011 secret_stuff
[lbutler@philip1 data_materials]$ cd MAS_rotor/
[lbutler@philip1 MAS_rotor]$ ls -l
total 613524
-rw-r--r-- 1 lbutler h3035  8978571 Jan  7  2011 3035_MAS_rotor_Xray.mov
-rw-r--r-- 1 lbutler h3035  6173430 Jan 10  2011 3035_MAS_rotor_Xray.nb
-rw-r--r-- 1 lbutler h3035 435175000 Jan  7  2011 MAS_rotor_{650,650,515}_uint16.bin
-rw-r--r-- 1 lbutler h3035 177904292 Mar 26 16:28 MAS_rotor_cropped.h5
```

I typed:

```
cd data_ and then pressed tab
```

```
ls -l
```

I typed:

```
cd MA and then pressed tab
```

```
ls -l
```

Found the data!!

(10) Should I go back to Philip home directory to launch VisIt?

Maybe it's a good idea.

```
[lbutler@philip1 MAS_rotor]$  
[lbutler@philip1 MAS_rotor]$ cd ~  
[lbutler@philip1 ~]$ pwd  
/home/lbutler  
[lbutler@philip1 ~]$ ls -l  
total 0  
[lbutler@philip1 ~]$
```

I typed:

cd ~

ls -l

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(11) Slide #39 tells us how to start an interactive job session:

VisIt display  
through X11

- Start an interactive job session

- `qsub -I -X -l walltime=<hh:mm:ss>,nodes=<# of nodes>;ppn=8 -q <queue name>`

I hate sans serif fonts for instructions like this.

`qsub -I -X -l ....` (Helvetica)

`qsub -I -X -l ....` (Palatino)

```
[lbutler@philip1 ~]$ qsub -I -X -l walltime=00:10:00,nodes=4;ppn=8 -q priority
qsub: waiting for job 135313.philip1 to start
qsub: job 135313.philip1 ready
```

I asked for 10 minutes and 4 nodes

Running PBS prologue script

User and Job Data:

```
Job ID: 135313.philip1
Username: lbutler
Group: Users
Date: 27-Mar-2012 10:57
Node: philip018 (17773)
```

Job ID: Important if I need to kill this job.

PBS has allocated the following nodes:

```
philip018
philip019
philip020
philip021
```

A total of 32 processors on 4 nodes allocated

Check nodes and clean them of stray processes

```
Checking node philip018 10:57:39
Checking node philip019 10:57:41
Checking node philip020 10:57:43
Checking node philip021 10:57:44
Done clearing all the allocated nodes
```

Concluding PBS prologue script - 27-Mar-2012 10:57:44

(12) Launch VisIt

Whoops! Did I forget the -X at ssh?

```
[lbutler@philip018 ~]$ visit
Running: gui2.3.2
visit-gui: Fatal IO error: client killed
```

(13) Kill job 135313.philip1

(14) Logged out and then relogin with `ssh -X lbutler@philip.hpc.lsu.edu`

VisIt display  
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- **Start an interactive job session**

- `qsub -l -X -l walltime=<hh:mm:ss>,nodes=<# of nodes>:ppn=8 -q <queue name>`

(15) All the prep work is done, so start interactive job session.

```
$ qsub -I -X -l walltime=00:10:00,nodes=4:ppn=8 -q priority
```

wait about 30 seconds

```
$ visit
```

```
[lbutler@philip018 ~]$ visit
Running: gui2.3.2
Running: viewer2.3.2 -host 127.0.0.1 -port 5600 -geometry 3008x1050+352+0 -borders 22,0,0,0 -shift 100,100 -preshift -1
Running: mdserver2.3.2 -host 127.0.0.1 -port 5601
□
```

And Visit launched!! Yeah.

(16) In VisIt, File / Open

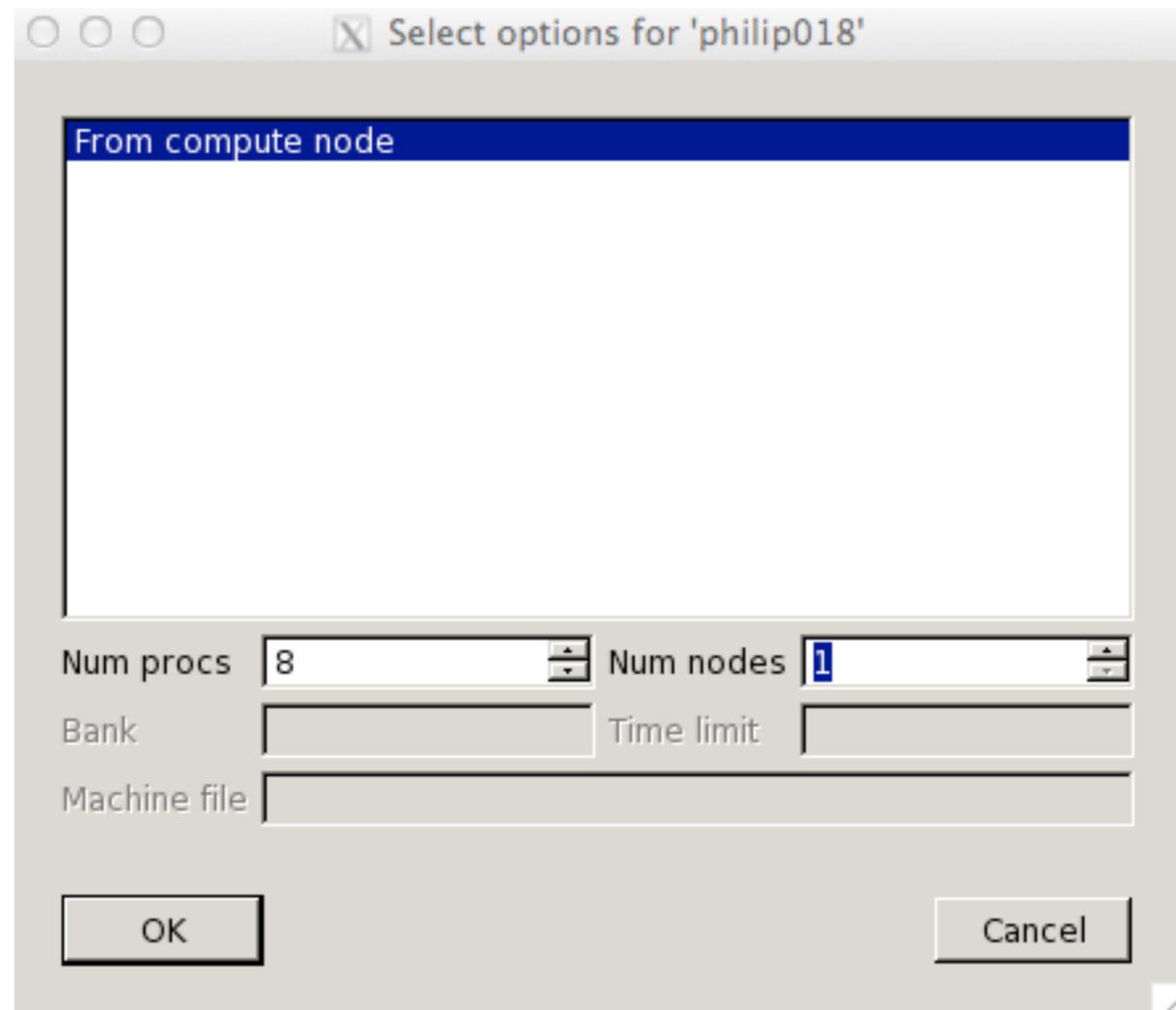
I'm starting from /home/lbutler. Go up a couple of levels to /

Scroll down to project and double-click on project. Path window updates to /project

Scroll down to lbutler and dc. Etc.

VisIt display  
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With selection of data file, this window pops up. I selected default num procs 8 and num nodes 1



(17) Add volume plot and draw.

Problem: Interactivity with image display is very, very, very slow.