Clément's recipe for a good reconstruction process
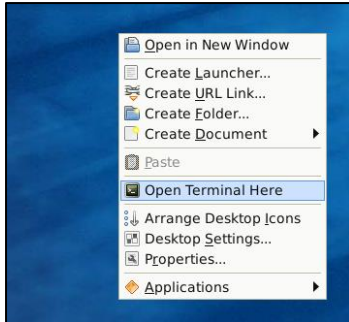
1. Connect to **rnice** (using NoMachine) :

Open a terminal using the **right click button>Open Terminal Here** or by clicking on the terminal icon.
Use the command:

%ssh -X rnice8

Type your password : the message :
`"You just logged on an ESRF Linux system - Welcome!"`
should appear.

2. Ask for GPU by using the following command:
%oarsub -q gpu -l"nodes=1,walltime=8" -I

3. Go in the acquisition's directory: use octave by typing the following command:
%octave
The "%" from your command prompt should now change to ">". If you want to exit octave, just type >**exit**

4. Use the command >**fastsetup3 expert** in order to set the acquisitions parameters.

Example: for K-edge acquisitions, I use the following parameters: (Only Paganin delta over beta ratio changes from one element's K-edge to the other)

```
Show projections during reconstruction? 0
Have a graphical output of reconstructed slice during reconstruction?  1
Method to find rotation axis position: [g]lobal, [a]ccurate, [h]ighlow, [m]anual, [f]ixed, [e]xcentrated, [n]ear, gi[v]en. accurate
use half-acquisition reconstruction when possible? 0
use Paganin phase retrieval process: [y]es, [n]o, [b]oth, [m]ulti. b
delta over beta ratio you want to use for the Paganin process: 800
apply an unsharp mask filtering after the phase retrieval?  1
sigma value in pixels for the unsharp mask. 0.80000
coefficient for the unsharp mask. 3
Position of the slice to be reconstructed? (0 select graphically, middle, or integer). middle
Correct for spikes?  1
Threshold for spikes removal:  0.040000
force new reconstruction of slices in case of use of ftseries_full? 0
reconstruct a slice during fasttomo?  1
Move axis to the center?  1
activate the external circular mask at 0?  1
use a stack of .edf files (0) or a single .vol file as output (1)? 0
Selection volume: [t]otal, [m]anual, [g]raphics: total
position of the pictures for center of rotation calculation: 0 90 0
use images taken during the scan for center of rotation calculation? systematic error for center of rotation position in pixels: 0
Reconstruct always biggest possible slice?  1
Perform rings correction in PyHST? 0
Automatically execute calculation refHST files?  1
Put acquisition in database tomoDB? 0
PyHST version to be used: PyHST2_2018a
```

Items **highlighted in green** correspond to the parameters that have changed from the default settings.

5. Use the command >**ft_series3("REGEX")** to apply those parameters to all the acquisition which regular expression correspond to the given **REGEX**.
Example: >**ft_series3("*13um*Au")**

This heavily depends on the name you give to your samples and how you differentiate each from the others. This command will keep running and wait for new acquisitions until you explicitly stop it (by using **CTRL + C**).

6. **Optional**: checking if par files are here . Once **ft_series3** is done, there should be at least two filenames finishing with ".par" (reconstruction parameters files) in the acquisition folder (one finishing with "**.par**" for regular reconstructions, the other finishing with "**pag0001.par**" for Paganin reconstructions). Consider using the **check_par_files.sh** bash script which parses each folder to check the presence of any "**pag0001.par**" file. (can be found in **popcorn>tomographic_reconstructions_scripts**)

7. Use the following command to reconstruct an image:
   %PyHST2_2018a name_of_the_par_file_pag0001.par
   par files are in the acquisition folder. In order to reconstruct multiple images using only one command, I suggest you to use the **multiple_reconstructions.py** script: you will only need to list the **regular expressions** of the acquisitions you need to reconstruct, as well as specifying the **acquisitions folder path**.

8. **Optional**: stitching multiple floors.
9. **Optional**: cropping images.