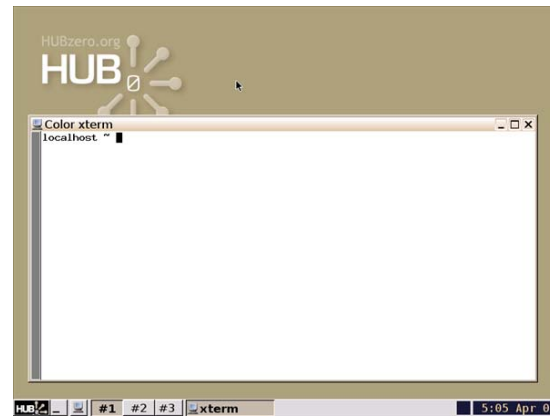


# Using Workspaces to Develop Simulation Tools









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# Getting into a Workspace

The screenshot shows the ThermalHub website interface. The main content area is titled "My ThermalHub" and contains several sections:

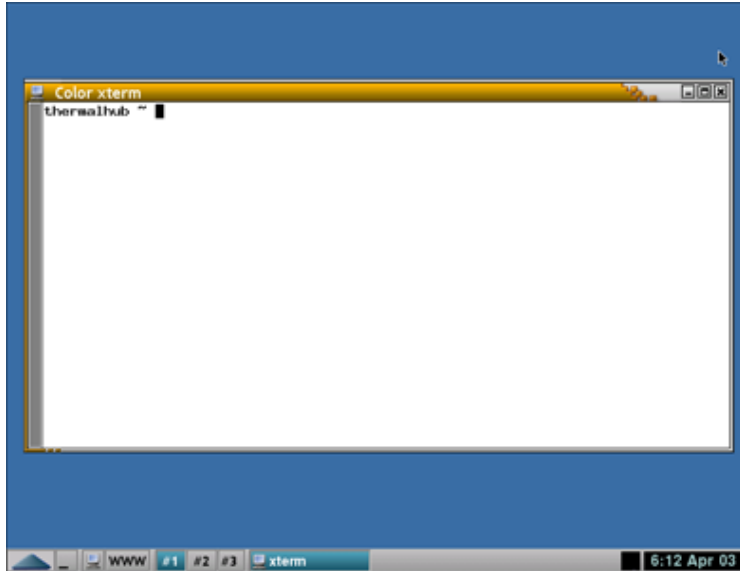
- My Sessions:** (none)
- My Tools:** A list of tools with tabs for "Recent", "Favorites", and "All Tools".
 

Recent	Favorites	All Tools
<a href="#">INCP</a>		
Thermoelectric Power Factor Calculator for Nanocrystalline Composites		
Thermoelectric Power Factor Calculator for Superlattices		
<a href="#">Workspace</a>  		
<a href="#">Workspace (1000x750)</a>  		
<a href="#">Workspace (1150x750)</a>  		

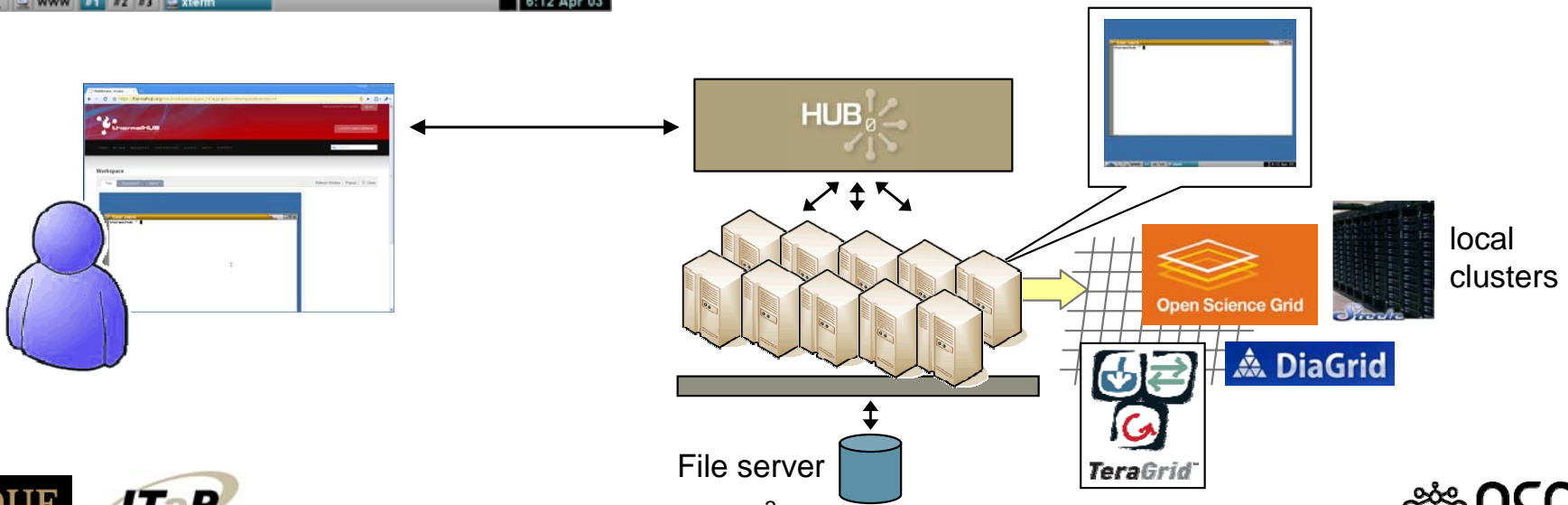
A red circle highlights the "add icon" (a green square with a white plus sign) next to the "Workspace" tool entry.
- My Groups:** thermalHUB Execut approved
- My Tickets:** Submitted Tickets (You have no active tickets), Assigned Tickets (You have no active tickets)
- My Contributions:** You have no contributions

At the bottom of the callout box, there is a note: "Add a tool to your favorites by clicking a star. Click the star again to remove it."

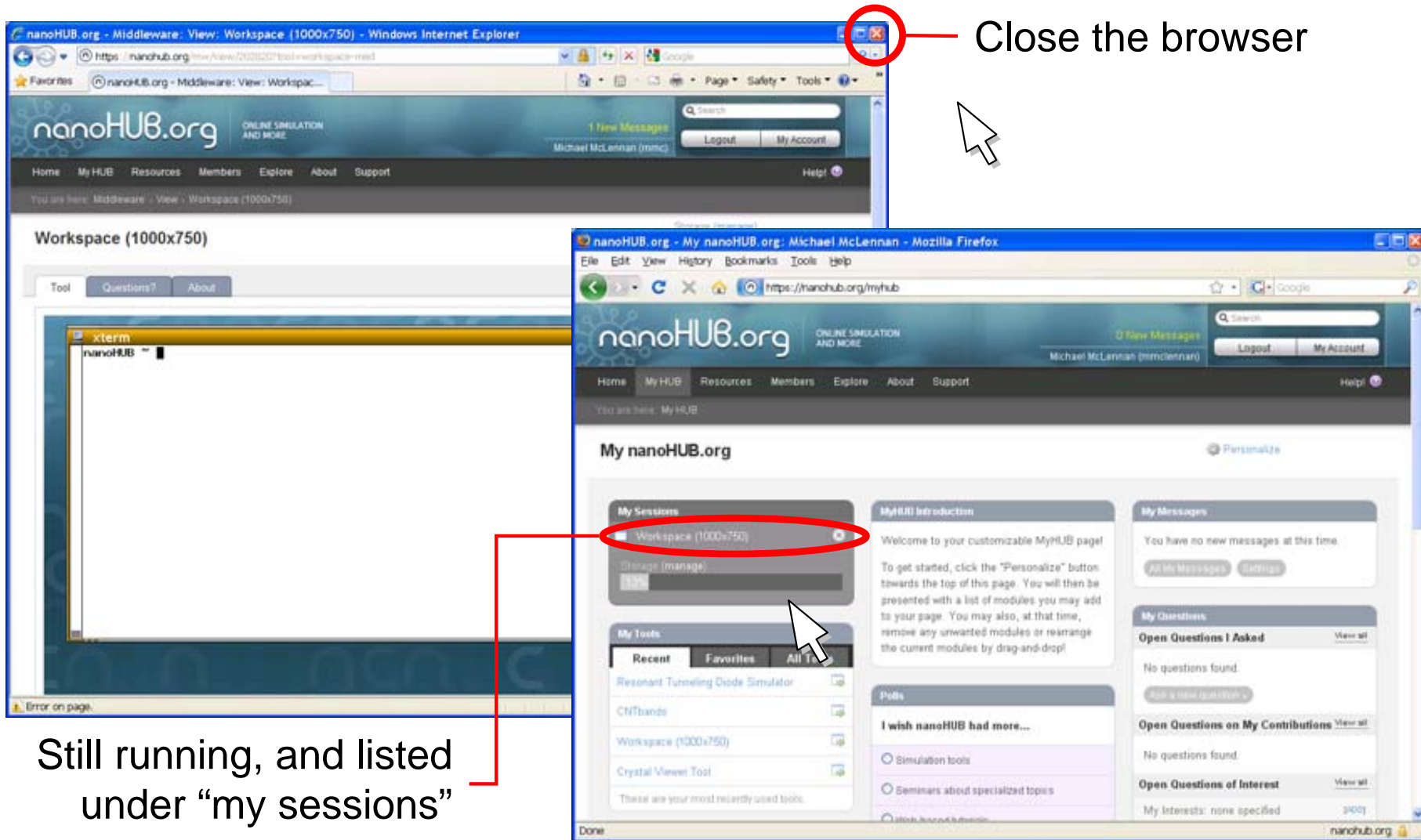
# What is a workspace?



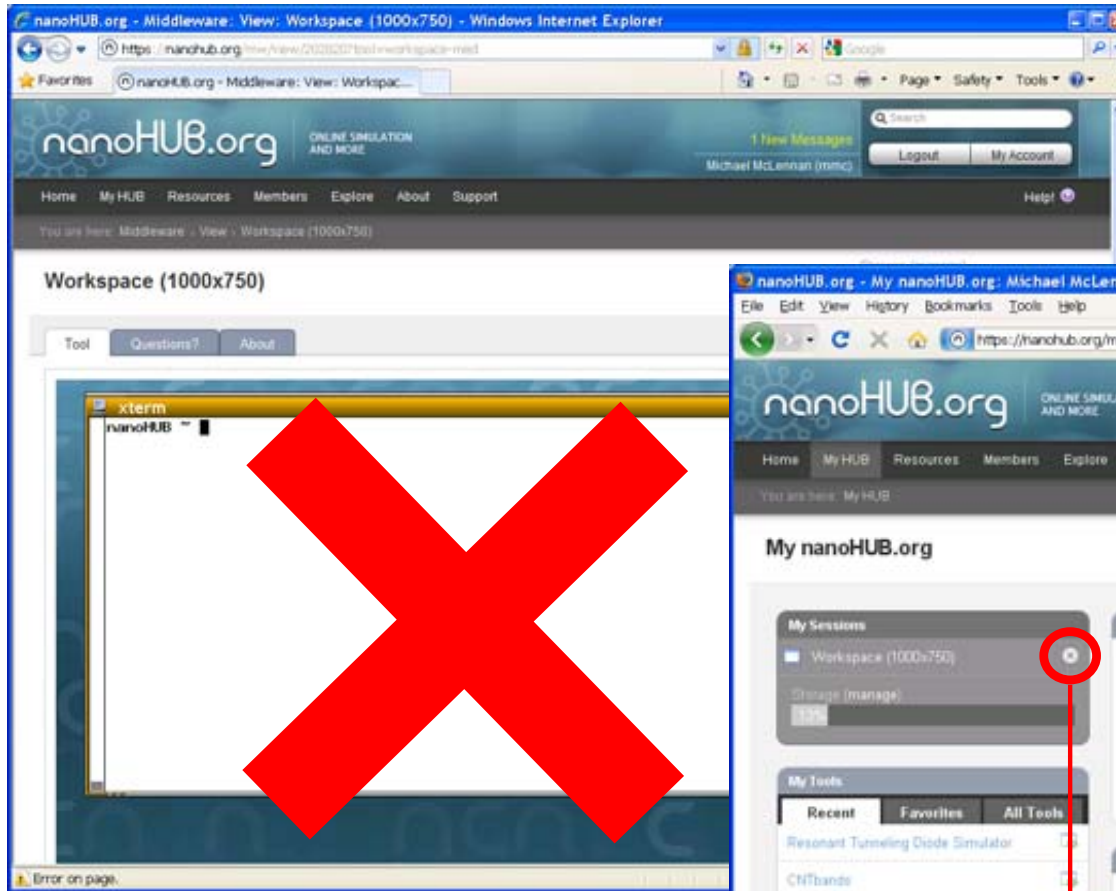
- Full-featured Linux desktop
- For tool developers
- For researchers
- Accessible from any web browser
- Still running after you close your browser
- Access to Grid resources
- File storage provided by the hub



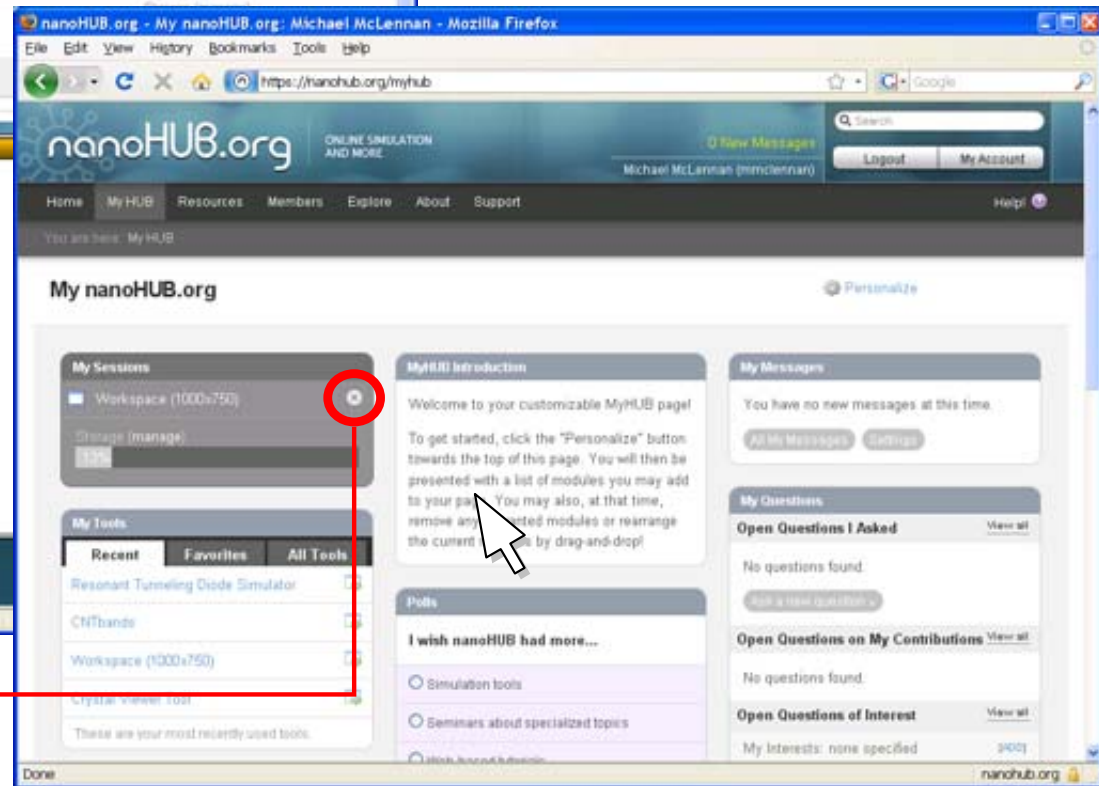
# Accessing running workspaces



# Closing workspaces

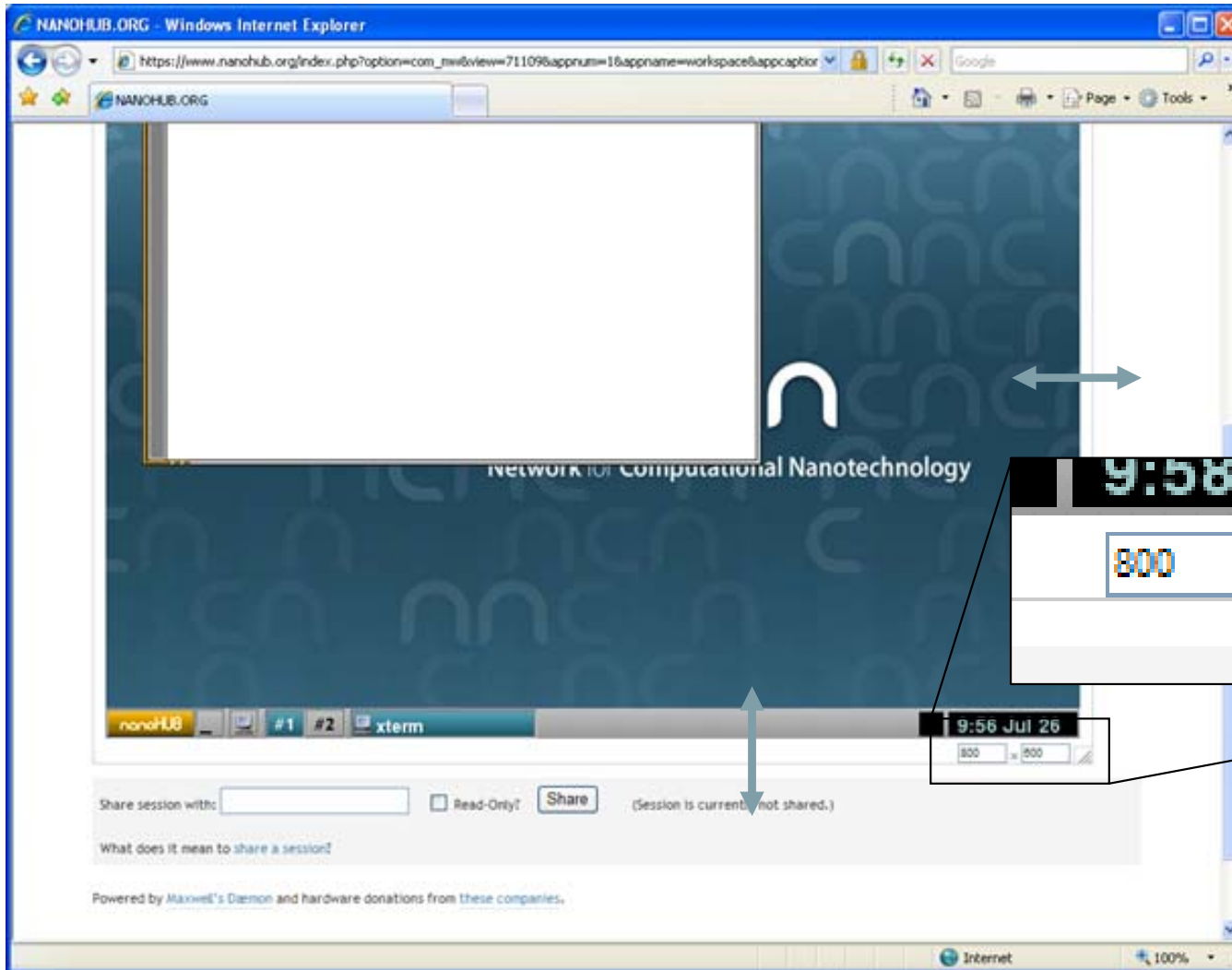


OR



Closes the session

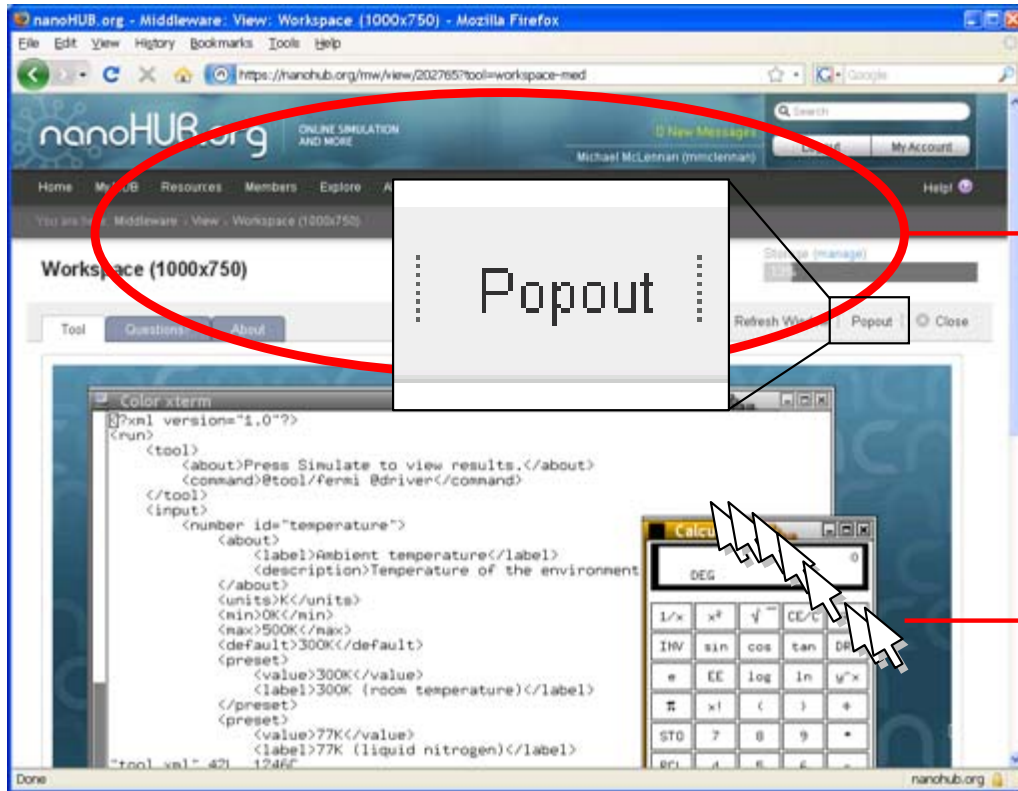
# Resize the screen



Click and drag

Type in a new size  
Press Tab

# Pop out as a separate window

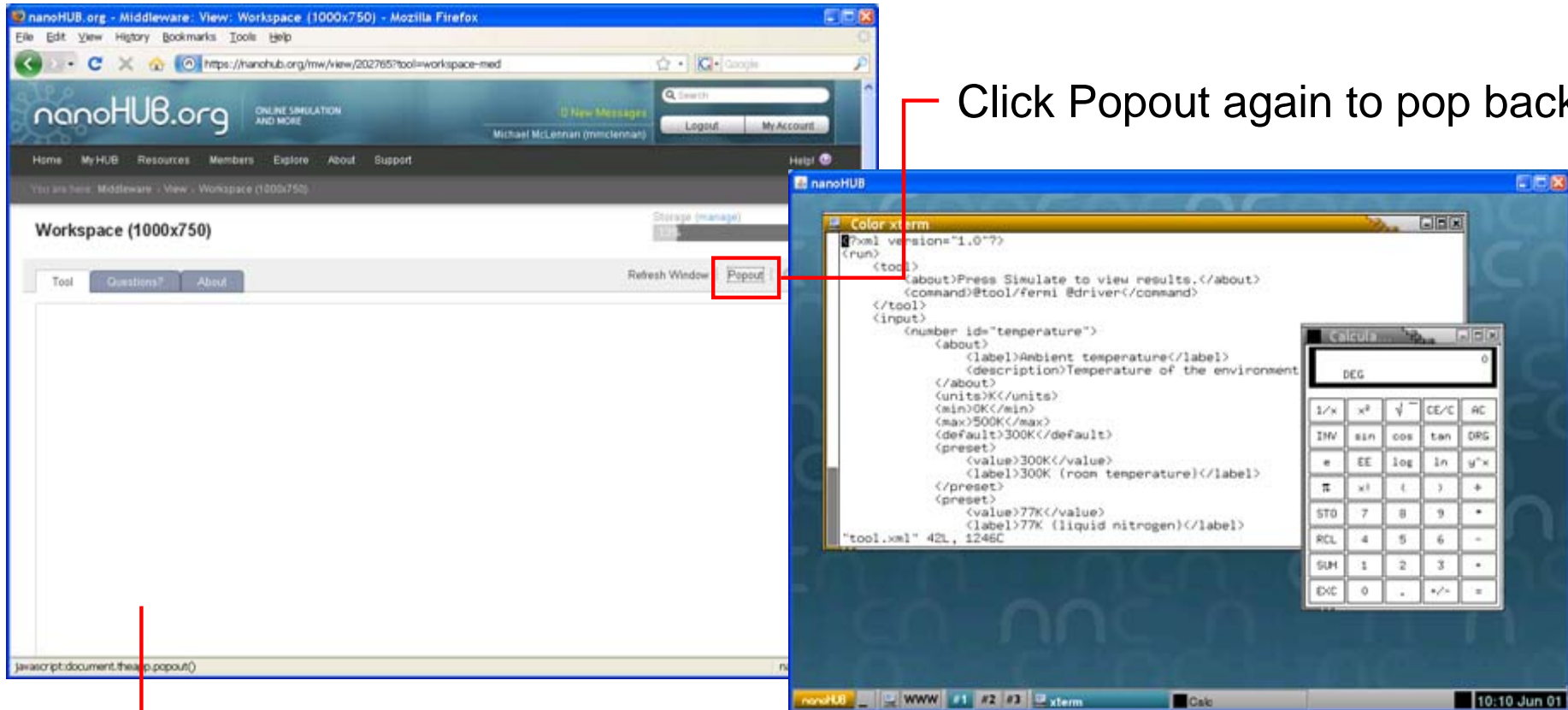


Get rid of this header and see more of the workspace



Solve problem of mouse trails e.g., MacOSX/Firefox

# Pop out as a separate window

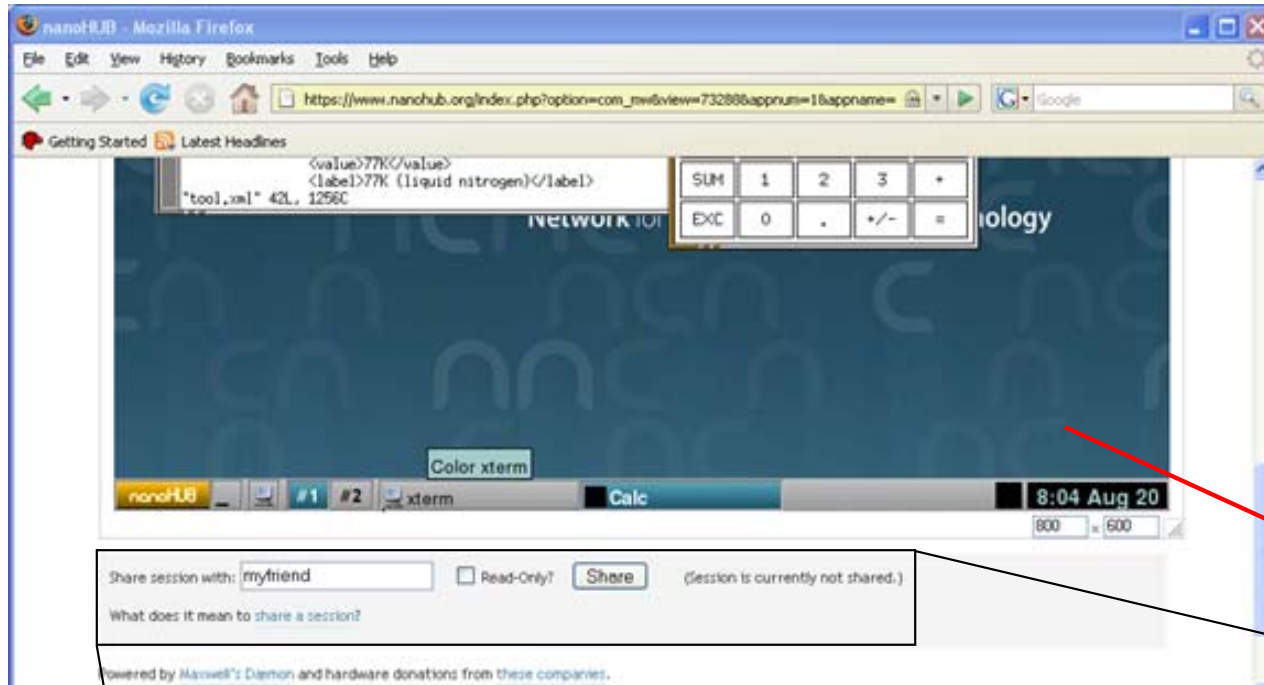


Click Popout again to pop back in

This area goes blank.  
Closing this window also closes the popup.



# Share your screen



**My Sessions**

Workspace (800x600)  
owner: mmclennan



myfriend

See same screen at same time

Enter the login for your friend

Check this if you don't want to share control

```
xterm
mmclennan@nanoHUB:~$ cat > /dev/null
Hi there! Take a look at this...
```

## Linux Cheat Sheet

`ls pattern` list files in the current directory  
`ls` list all files  
`ls *.xml` list files ending with .xml  
  
`mkdir name` make a new directory called *name*  
`mkdir assmt3` make a new directory called assmt3  
  
`cd name` change working directory  
`cd assmt3` change to directory assmt3  
`cd ..` change to parent directory  
`cd` change back to home directory (good if you get lost)  
  
`cp from to` copy file *from* to file *to*  
`cp /apps/rappture/current/examples/zoo/number/tool.xml .`  
`cp ../assmt3/tool.xml newtool.xml`  
  
`gedit file` edit the specified file  
  
`rappture` run Rappture (loads tool.xml by default)  
`rappture -tool foo.xml`

<p> / = separates directories  . = current directory  .. = parent directory  * = matches anything  ? = matches single char </p>
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# Editors

The image shows a screenshot of the HUBzero workspace interface. A terminal window titled "Color xterm" is open, displaying the following commands and output:

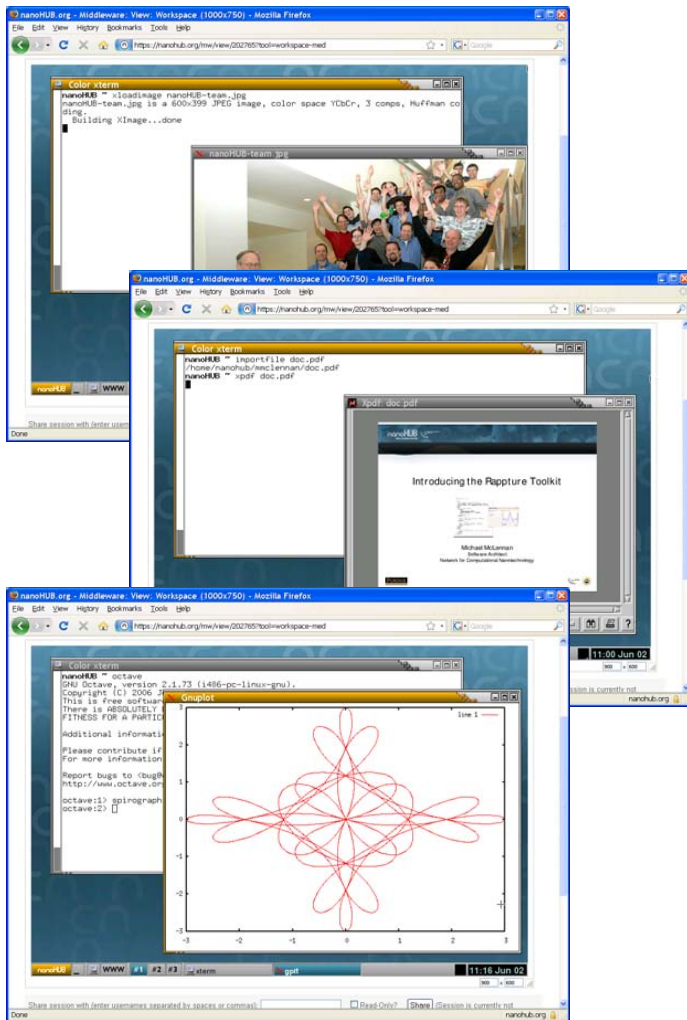
```
nanoHUB ~ vi tool.xml
nanoHUB ~ emacs tool.xml
nanoHUB ~ gedit &
[1] 5376
nanoHUB ~ █
```

A "Start" menu is overlaid on the terminal window, listing the following editors:

- emacs
- gedit
- gvim
- nano
- NEdit

The "Start" menu is also shown in a separate box on the left, with the text "Start menu" and the HUB logo.

# Other utilities



xl oadi mage *file*

view image file

xpdf *file*

PDF viewer

gi mp &

image editor

dx &

scientific data explorer

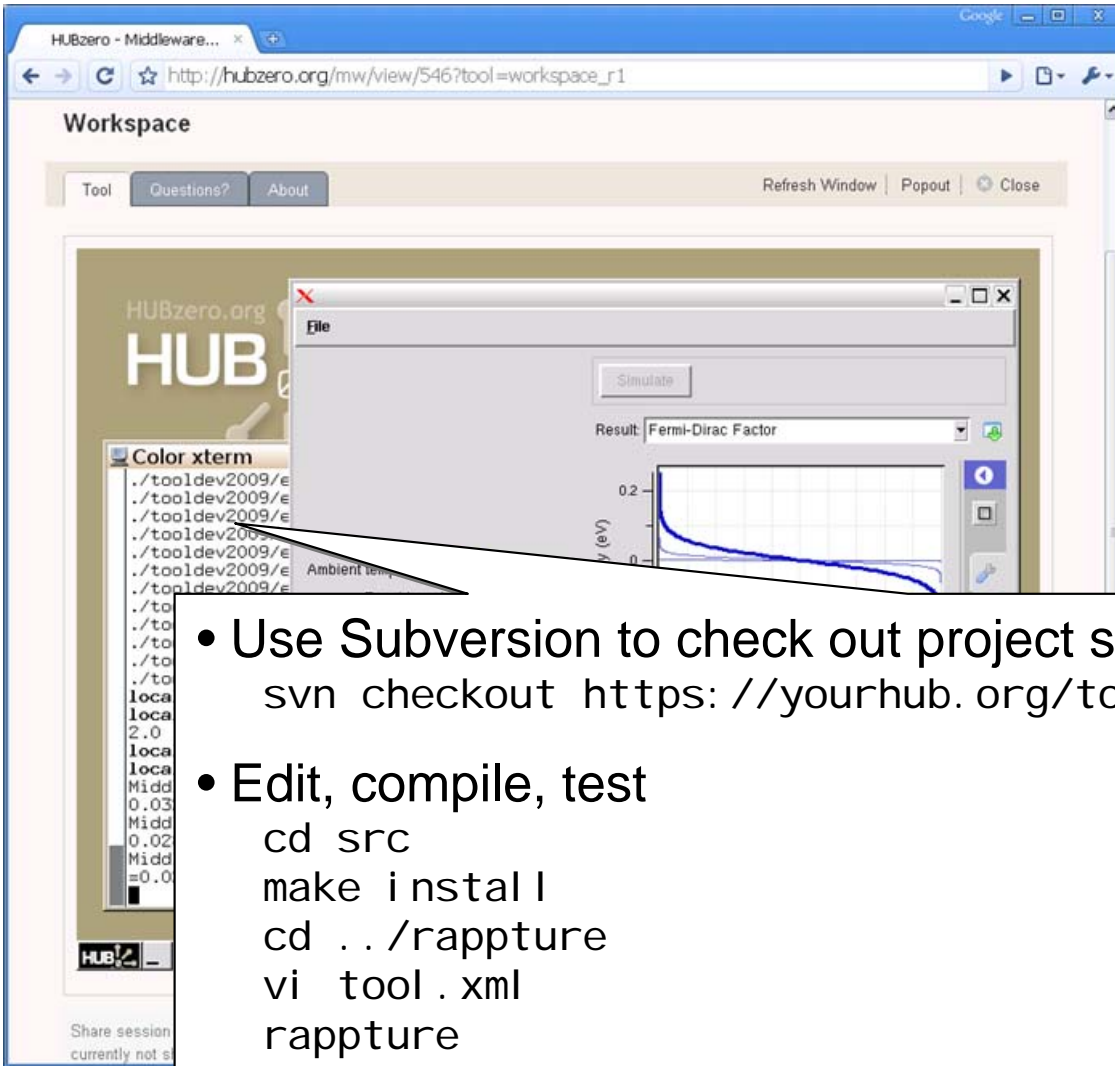
octave &

MATLAB clone

xcal c &

calculator

# Developing tools



The screenshot shows the HUBzero workspace interface. At the top, there's a browser window with the URL `http://hubzero.org/mw/view/546?tool=workspace_r1`. Below the browser, the workspace has a header with "Workspace" and buttons for "Tool", "Questions?", and "About". There are also "Refresh Window", "Popout", and "Close" buttons. The main area contains a terminal window titled "Color xterm" with a shell prompt `./tooldev2009/e` and a simulation window titled "File" with a "Simulate" button and a graph showing the "Fermi-Dirac Factor" vs energy (eV). A callout box points to the terminal window.

- Use Subversion to check out project source code  
`svn checkout https://yourhub.org/tools/yourtool/svn/trunk yourtool`
- Edit, compile, test  
`cd src`  
`make install`  
`cd ../rappture`  
`vi tool.xml`  
`rappture`

See instructions:

- in your project area at [wiki/GettingStarted](#)
- [Subversion tutorial](#)
- [Rappture tutorial](#)

# Downloading Files

The screenshot shows a nanoHUB.org interface with three windows:

- Terminal Window (Color xterm):** Shows a file listing command and its output:
 

```
meclennan@nanoHUB:~/app-qdot/rappture$ ls -l
total 52
drwxr-xr-x 3 meclennan public 4096 Jul 26 22:10 data
drwxr-xr-x 3 meclennan public 4096 Jul 26 22:10 examples
-rw-r--r-- 1 meclennan public 29060 Jul 26 22:10 qdot.r
-rw-r--r-- 1 meclennan public 11885 Jul 26 22:10 tool.xml
meclennan@nanoHUB:~/app-qdot/rappture$
```
- Firefox Window 1:** Displays XML code for downloading a file named 'box.xml'. The code includes parameters for 'xlen' and 'ylen'.
 

```
<?xml version="1.0"?>
<run>
<about>
  <label>Box</label>
  <description></des
</about>

<input>

<group id="tabs">
<group id="geometry">

<structure>
  <current>
    <parameters id="boxparams">
      <number id="xlen">
        <about>
          <label>X
          <descrip
        </about>
        <units>nm<
        <default>5
        <current>5
        <min>0.5nm
        <max>40nm<
      </number>
```
- Firefox Window 2:** Displays XML code for downloading a file named 'cyl.xml'. The code includes parameters for 'xlen' and 'ylen'.
 

```
<?xml version="1.0"?>
<run>
<about>
  <label>Cylinder</label>
  <description></description>
</about>

<input>

<group id="tabs">
<group id="geometry">

<structure>
  <current>
    <parameters id="boxparams">
      <number id="xlen">
        <about>
          <label>X dimensions</label>
          <description>The length of the cylinder along the x-axis.</d
```

A callout box points to the terminal window with the following text:

- Easy way to download files:  
 exportfile tool.xml  
 exportfile examples/\*

# Uploading files

The screenshot shows two overlapping browser windows. The background window is the nanoHUB homepage, and the foreground window is the 'Upload' page. A terminal window is open in the background, showing the command `importfile src.tgz` and its output. A file selection dialog is also open, showing a list of files in the 'Images' folder.

```

nanoHUB.ORG - Windows Internet Explorer
https://www.nanohub.org/index.php?option=com_content&view=article&id=71109&appnum=1&appname=workspace&appcaptio...
NANOHUB.ORG
About this tool | Refresh Window | Popout

Color xterm
necleennan@nanoHUB:~/app-qdot/rappture$ ls -l
total 52
drwxr-xr-x 3 necleennan public 4096 Jul 26 22:10 data
drwxr-xr-x 3 necleennan public 4096 Jul 26 22:10 examples
-rw-r--r-- 1 necleennan public 29060 Jul 26 22:10 qdot.r
-rw-r--r-- 1 necleennan public 11885 Jul 26 22:10 tool.xml
necleennan@nanoHUB:~/app-qdot/rappture$

Upload - Windows Internet Explorer
https://www.nanohub.org/files/fer/11DQHLeMkkyVn3Tuj/download/upload3997.html?token=63wvBQh6xZHTMRJ7jbcf

nanoHUB
online simulation and more

Upload

Use this form to upload data. If you don't specify a file for a particular input, that input won't be modified by the Upload operation.

File src.tgz:
 Upload a file  Copy/paste text
 

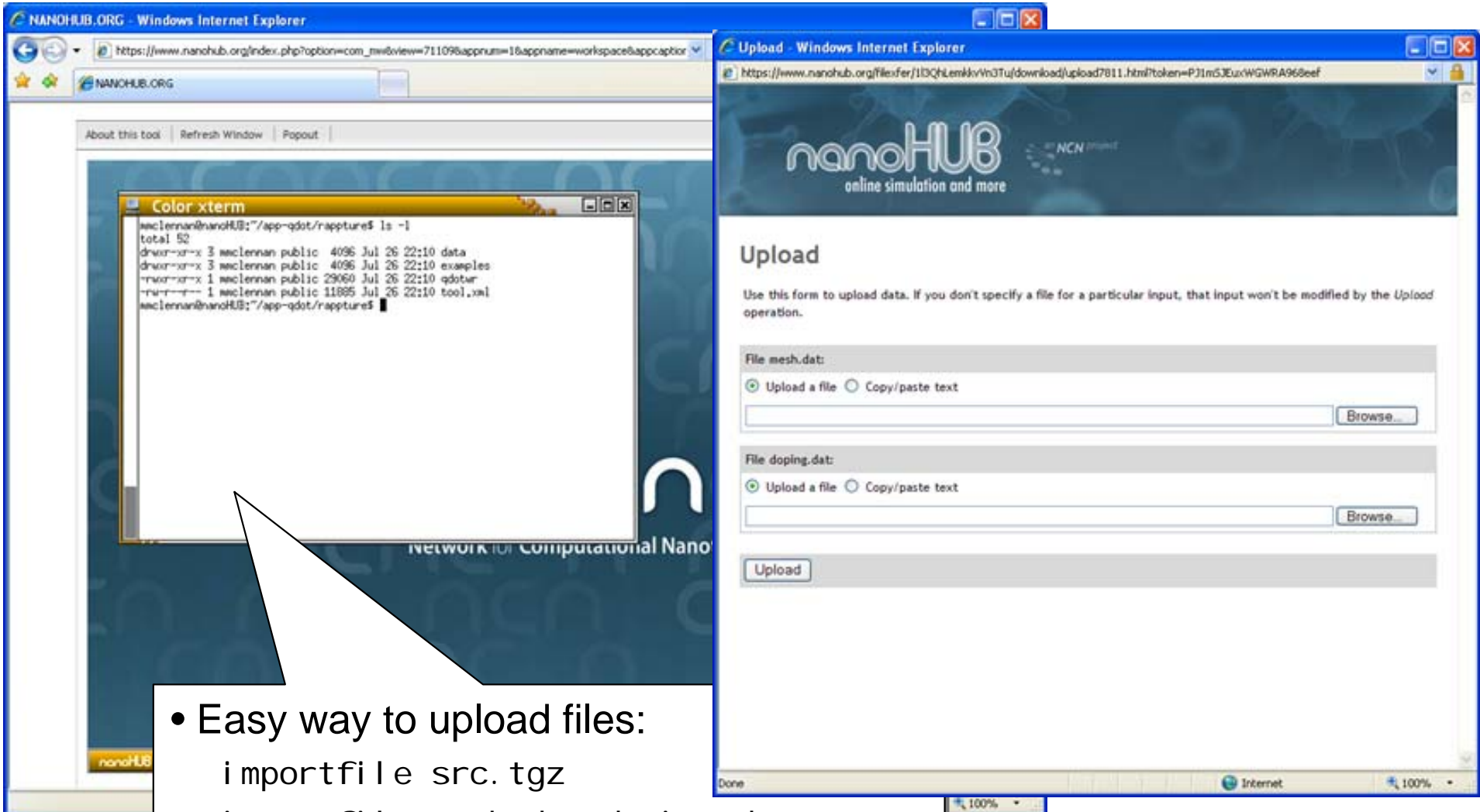


Choose file
Look in: Images
Recent
Desktop
My Documents
My Computer
My Network Places
BandStructure
Circuits
Collaboration
For Web
Lego SPM
NANO
NEMS
QuantumDot
Team
TeraGrid video
Tools
20060103corp
breeze
capacitytime
critbands
critbands-small
computingcapacity
creativecommons-2.5
cvid-process
cyberinfrastructure
cyberinfrastructure
cyberinfrastructure
cyberinfrastructure-raw
dna
gennano2
gennano3
gennano4
groups
groups-raw
hoveblog
hub0 for ppt
hubzero
hubzero
hubzero-all
img_0272
iwe
iwe-python
lecture-health
mission-nano
molctoy
nsl-crit
nanoHUB
nanoHUB
File name:
Files of type: All Files (*.*)


    
```

- Easy way to upload files:  
`importfile src.tgz`

# Uploading files

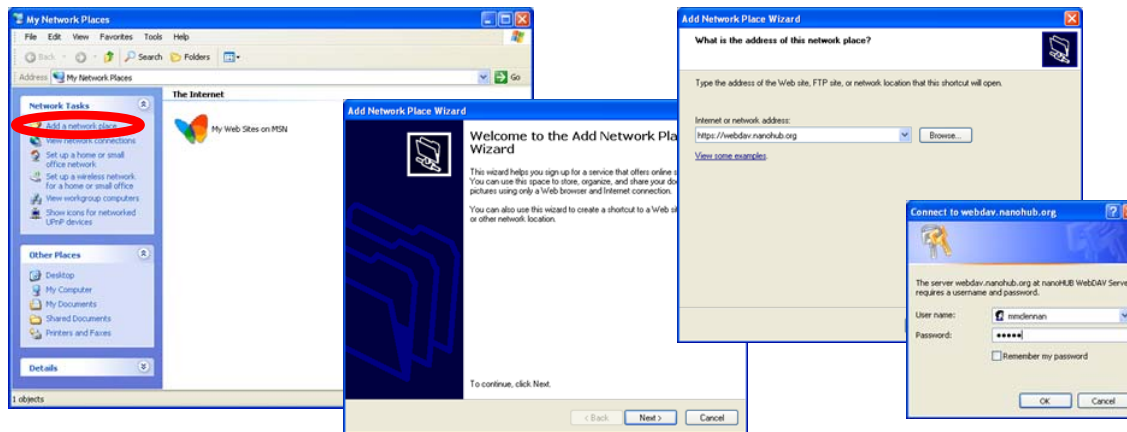


- Easy way to upload files:  
`importfile src.tgz`  
`importfile mesh.dat doping.dat`



# Other ways to transfer files

## Drag & drop on the desktop (webdav)



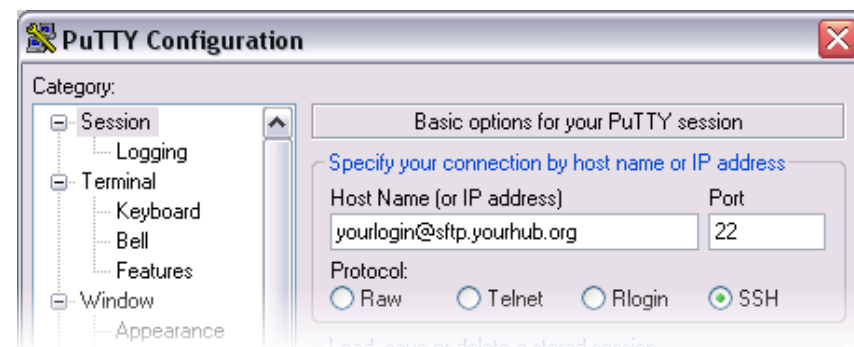
On Microsoft Windows:

- Go to *My Network Places*
- Click *Add a network place*
- Internet or network address:  
`https://nanohub.org/webdav`

## Secure FTP (sftp)

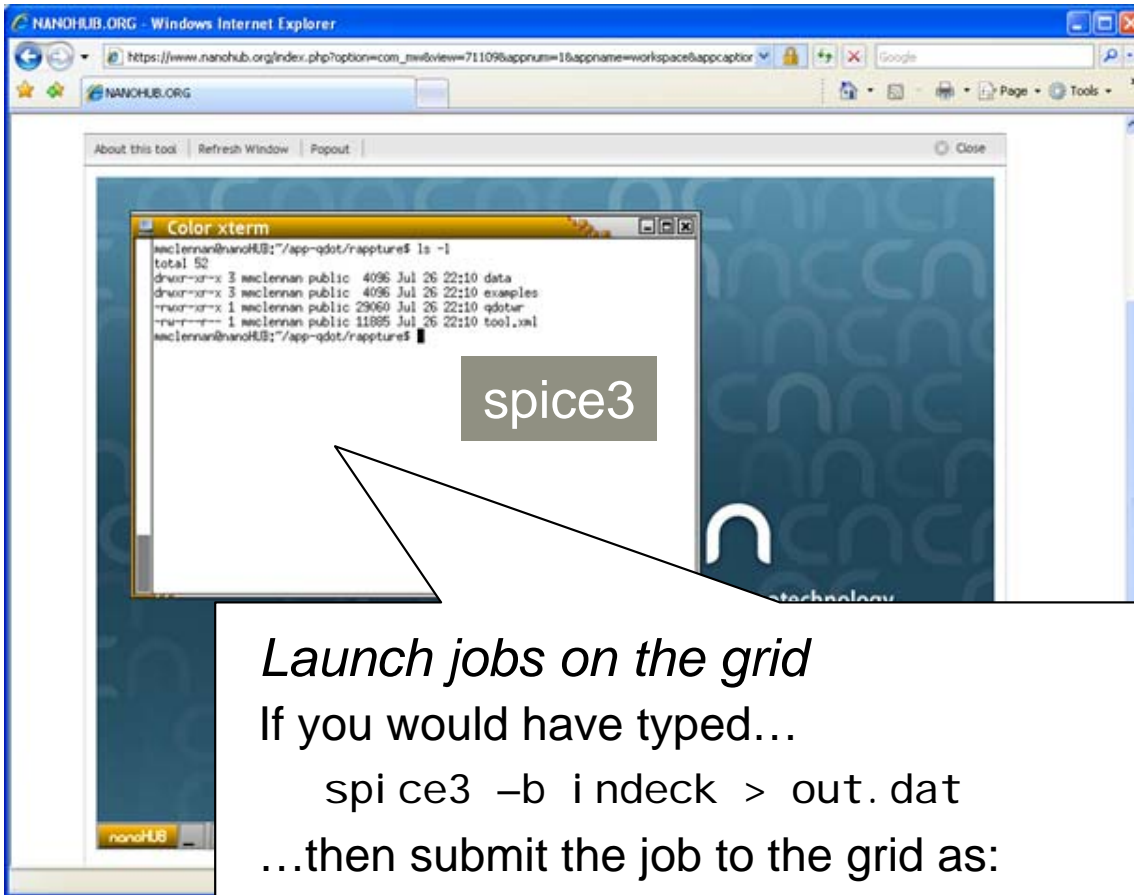


sftp client, such as PUTTY  
<http://www.putty.org/>



`yourlogin@sftp.yourhub.org`

# Accessing the Grid



local clusters

*Launch jobs on the grid*  
If you would have typed...

```

    spi ce3 -b i ndeck > out. dat
  
```

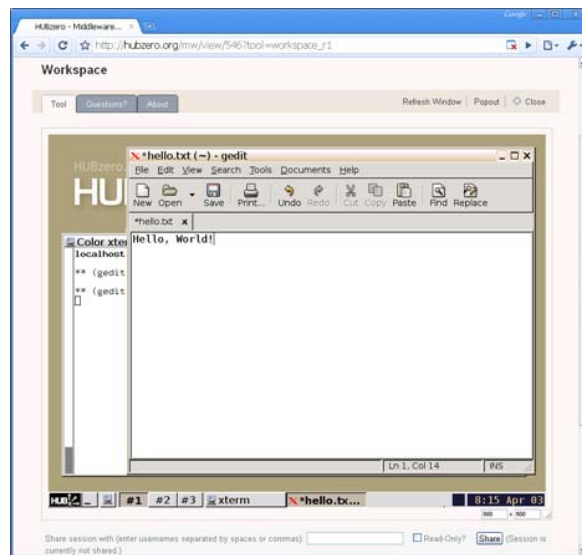
...then submit the job to the grid as:

```

    submi t spi ce3 -b i ndeck > out. dat
    submi t --venue steel e spi ce3 -b i ndeck > out. dat
  
```

# Exercise #1: Using Workspaces

- 1) Log in and launch a workspace
- 2) Bring up your favorite editor and create a file called `hello.txt` with the text: `Hello, World!`
- 3) Export the file to your desktop
- 4) Import another file back into your workspace



*Hint:* look at commands...  
`export file --help`  
`import file --help`