TD Simulation

Ecole Nord Africaine et workshop en Microscopie Electronique

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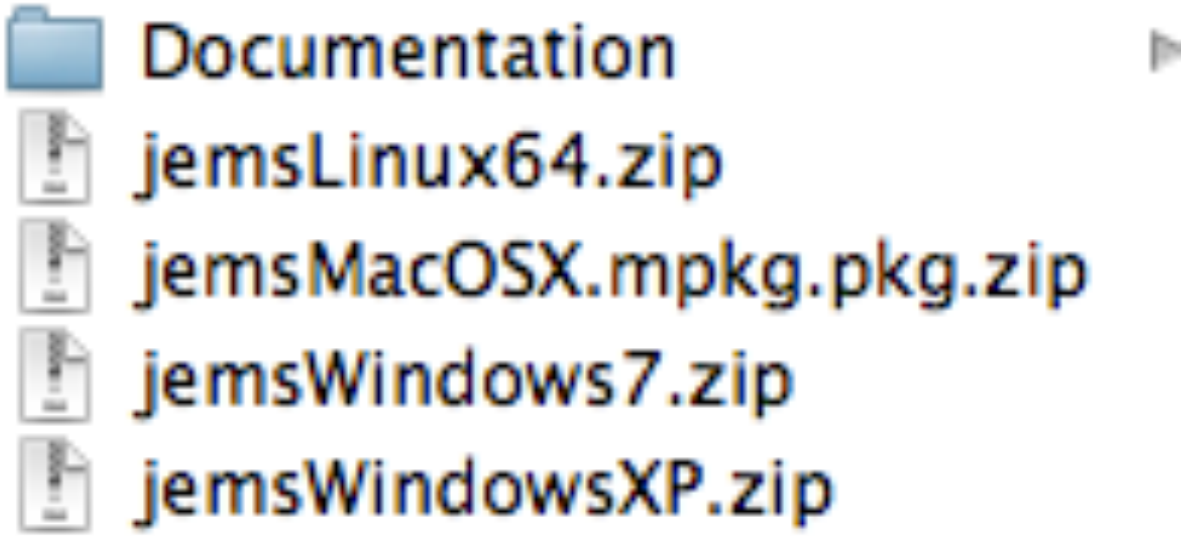
USB Key



- Copy the .zip file compatible with your PC operating system.
- Do not open it, but use Extract All in order to unzip the file.

Extracting jems

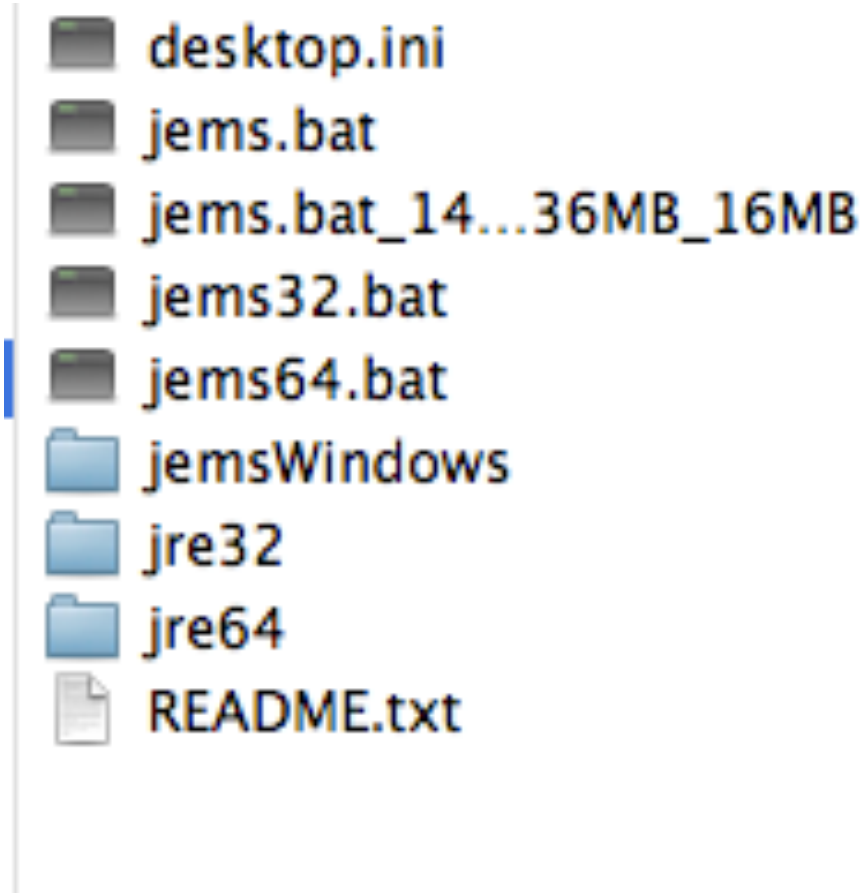


Figure: Windows 7 or 8 version: jems started either using jems32.bat or jems64.bat depending on Windows being 32 or 64 bits.

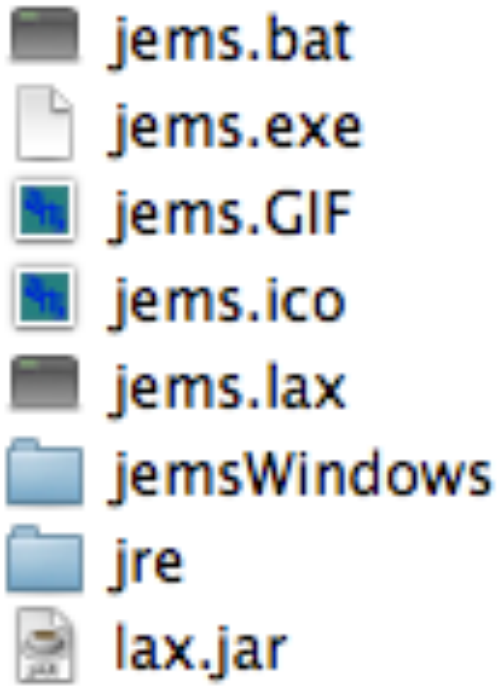


Figure: Windows XP (only 32 bits).

For Windows 7 after having determine the version 32 (or 64) copy jems32.bat (or jems64.bat) to jems.bat. jems modifies jems.bat.

Starting jems

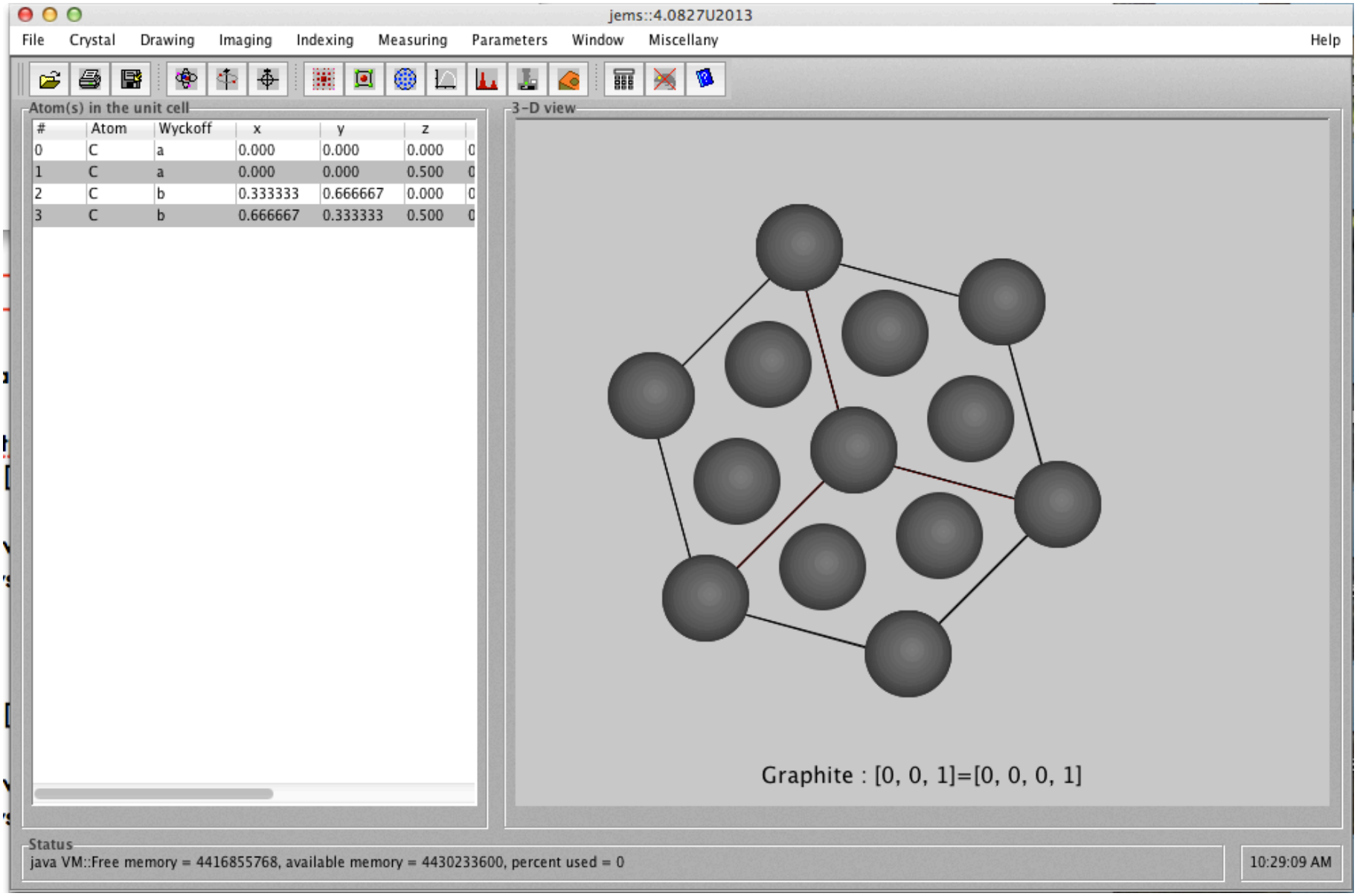


Figure: Starting jems you will get error messages: do not exit jems but open the License dialogue (License menu item of Help menu.

License dialogue

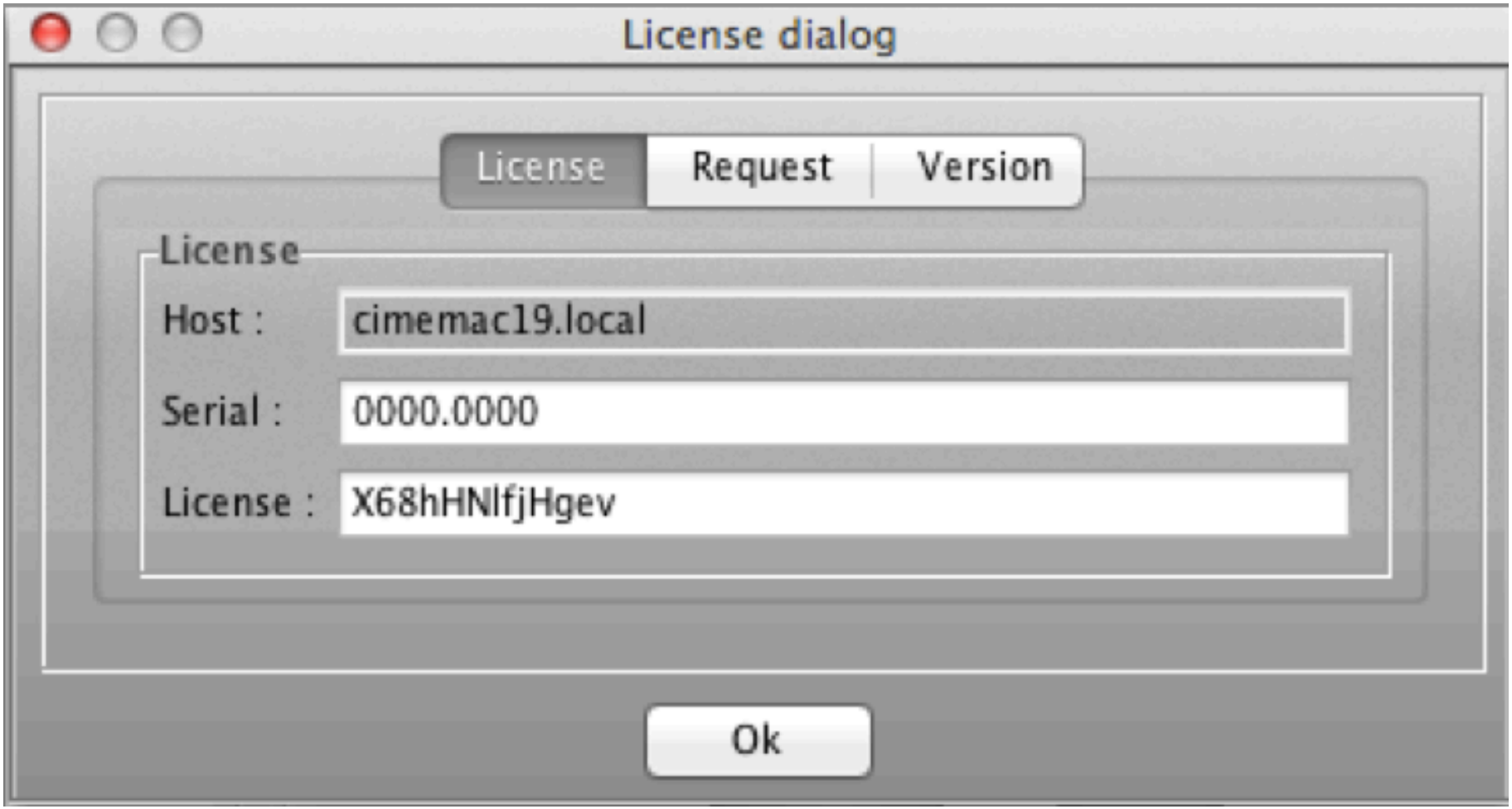


Figure: The license dialogue showing the Host name of the computer and Serial number.

The hostname and serial will be used to generate a license code.

Preferences

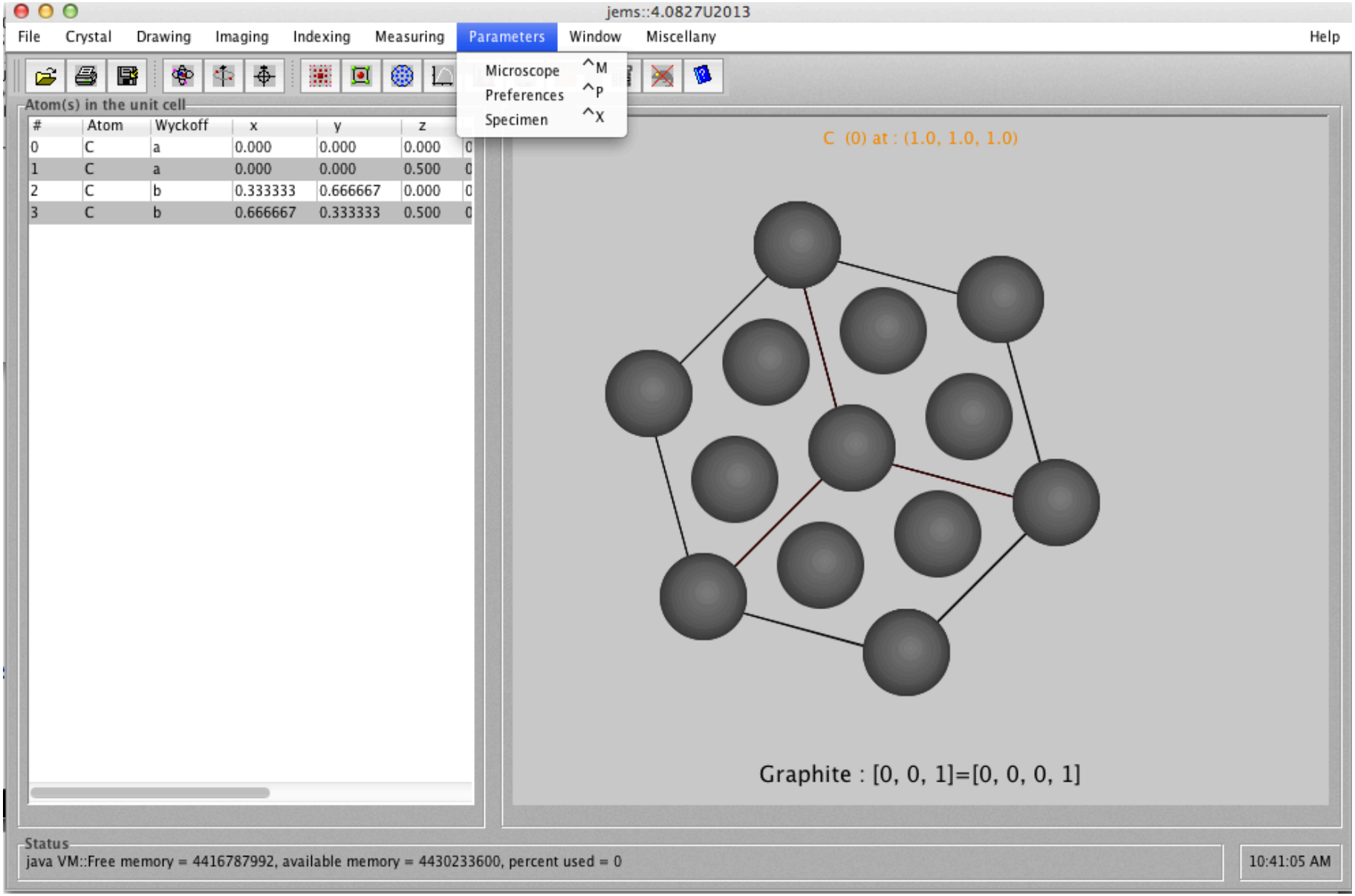


Figure: Parameters → Preferences menu item allows to set default values of many jems parameters.

Default crystal

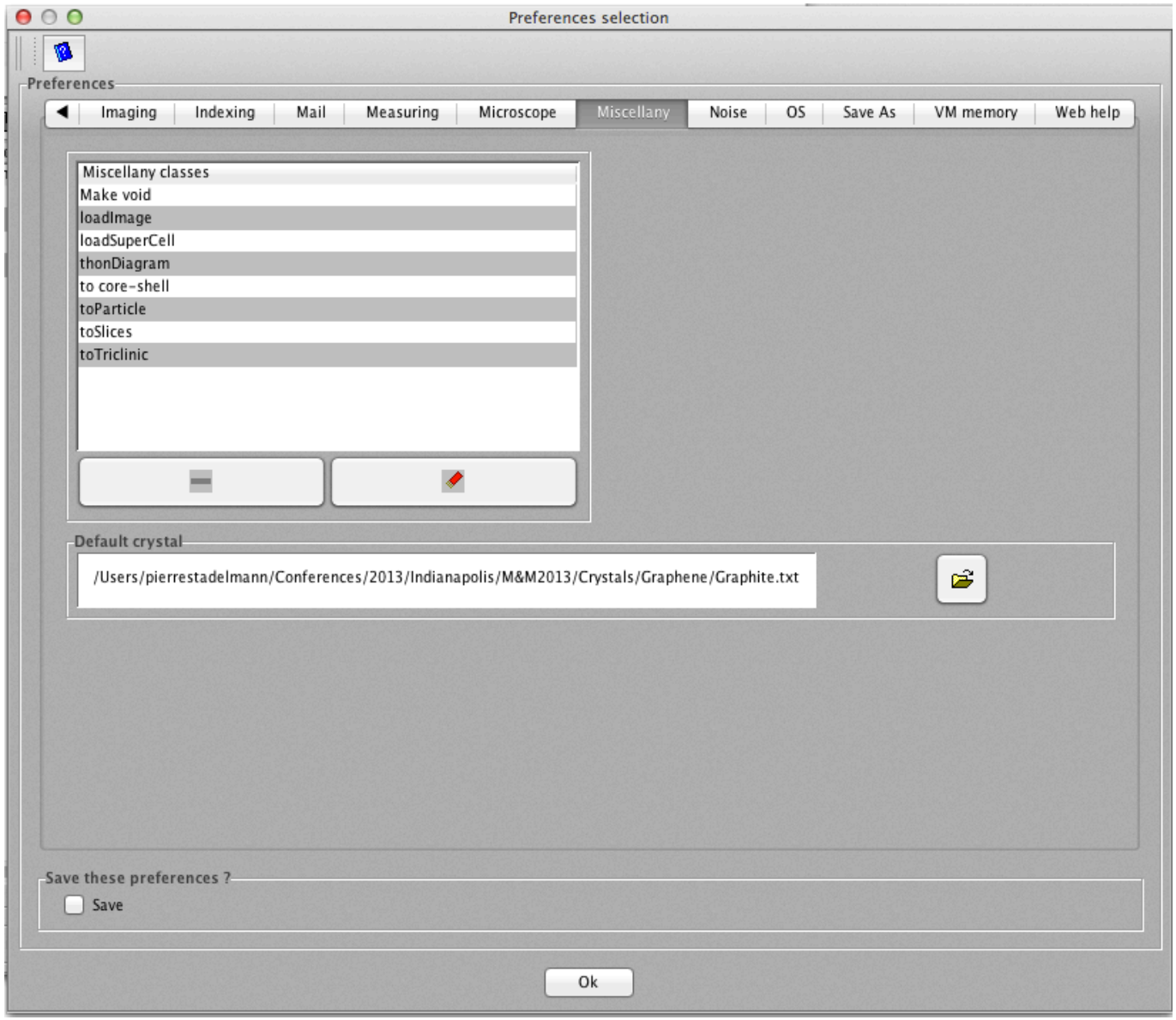


Figure: The default crystal is selecting when jems is started.

Default crystal

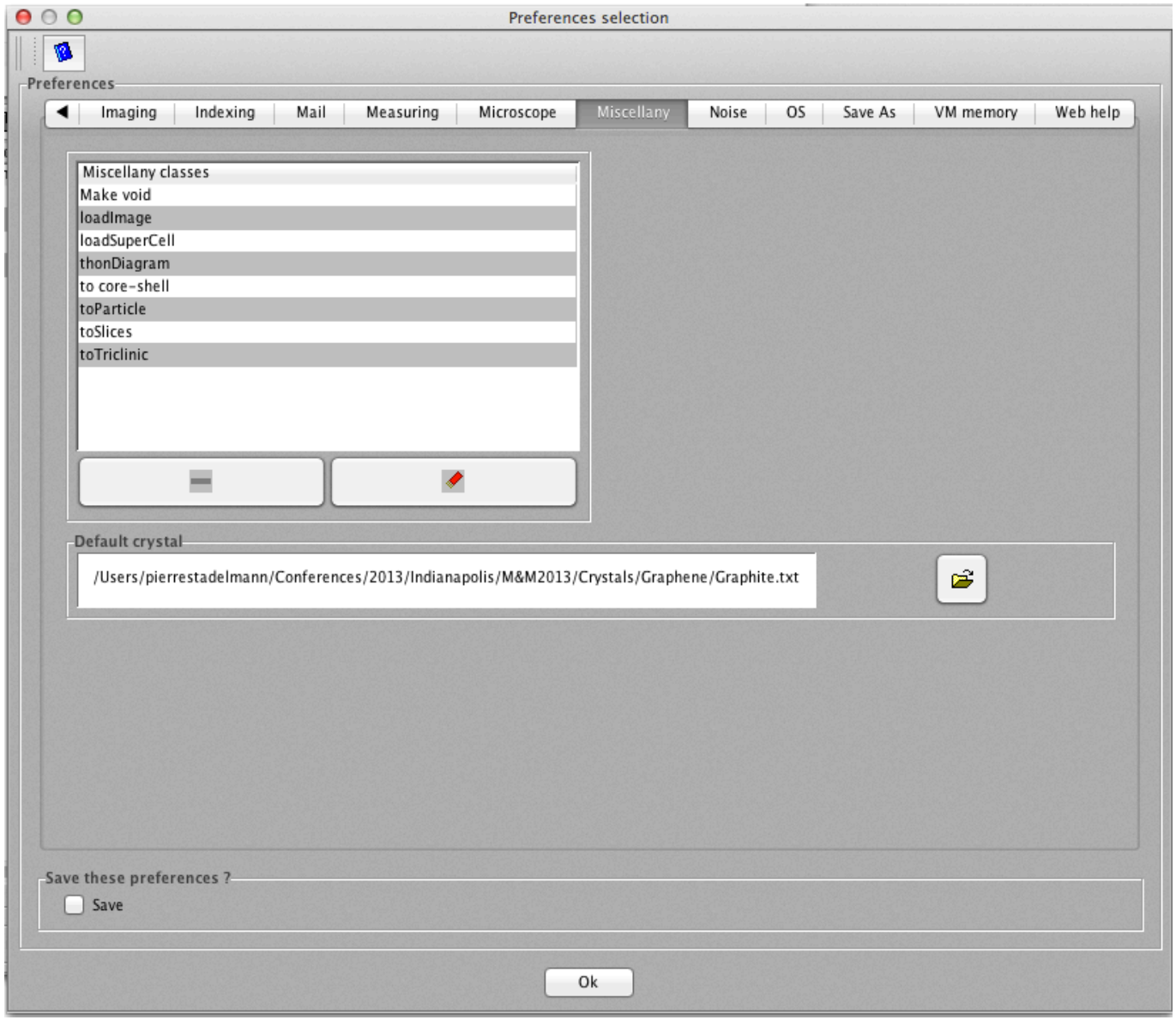


Figure: The default crystal is selecting when jems is started.

Selecting Si

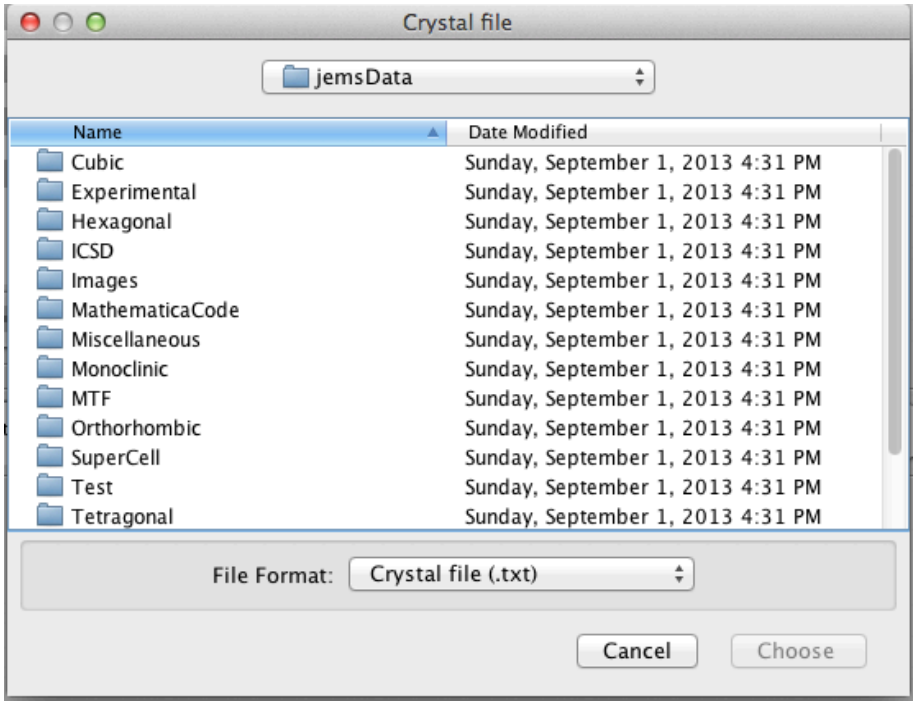


Figure: Crystal files are organized by crystal system.

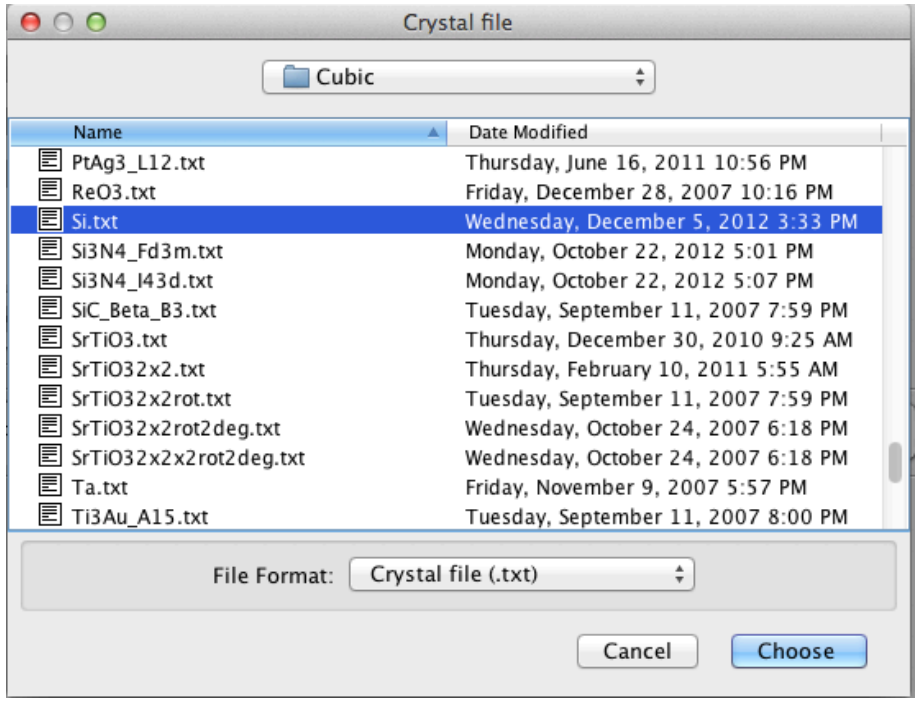


Figure: Si crystal file.

Selected the Si crystal,

Saving preferences

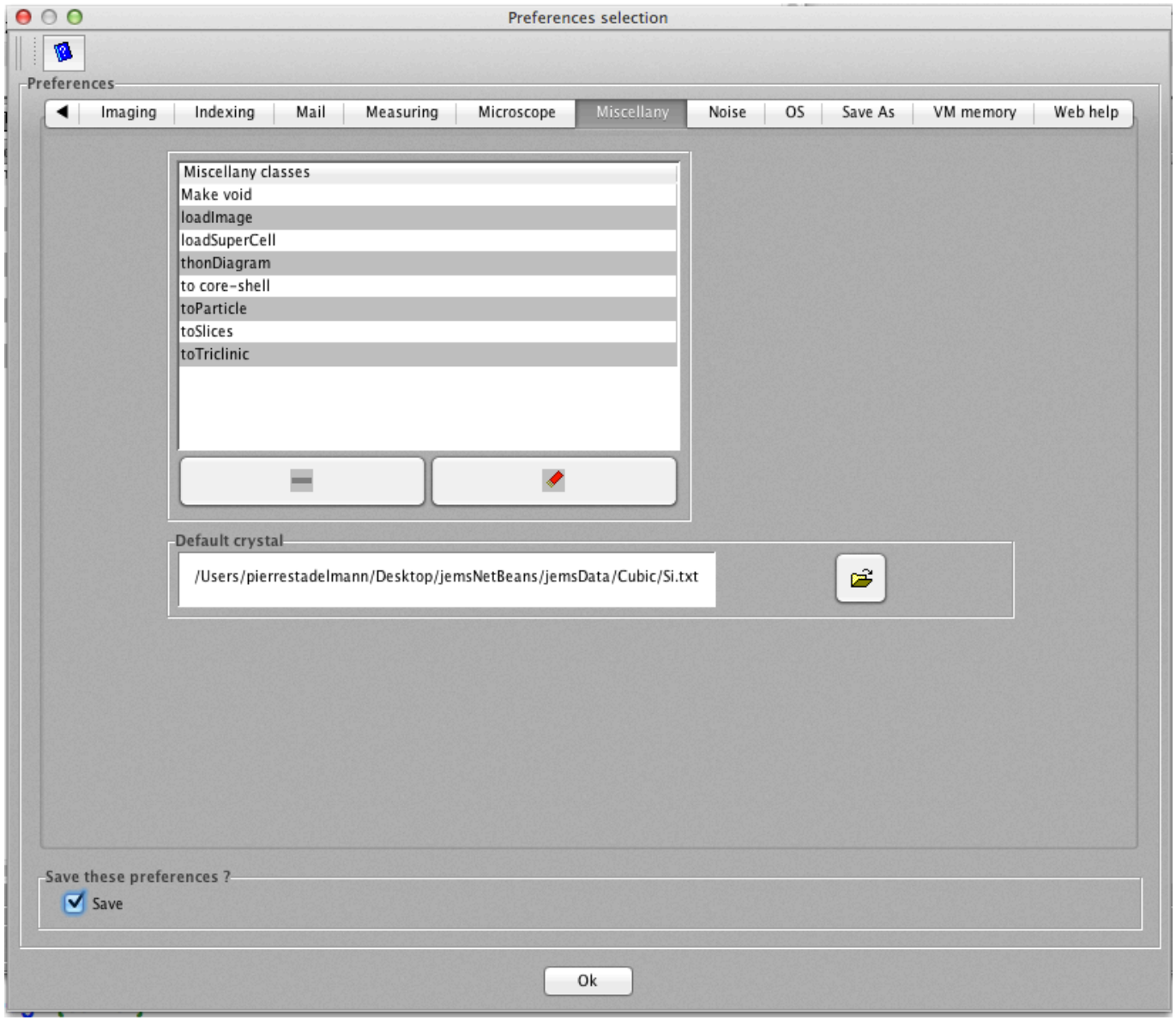


Figure: Cross the Save check box in order to save your preferences.

USBKey documentation folder

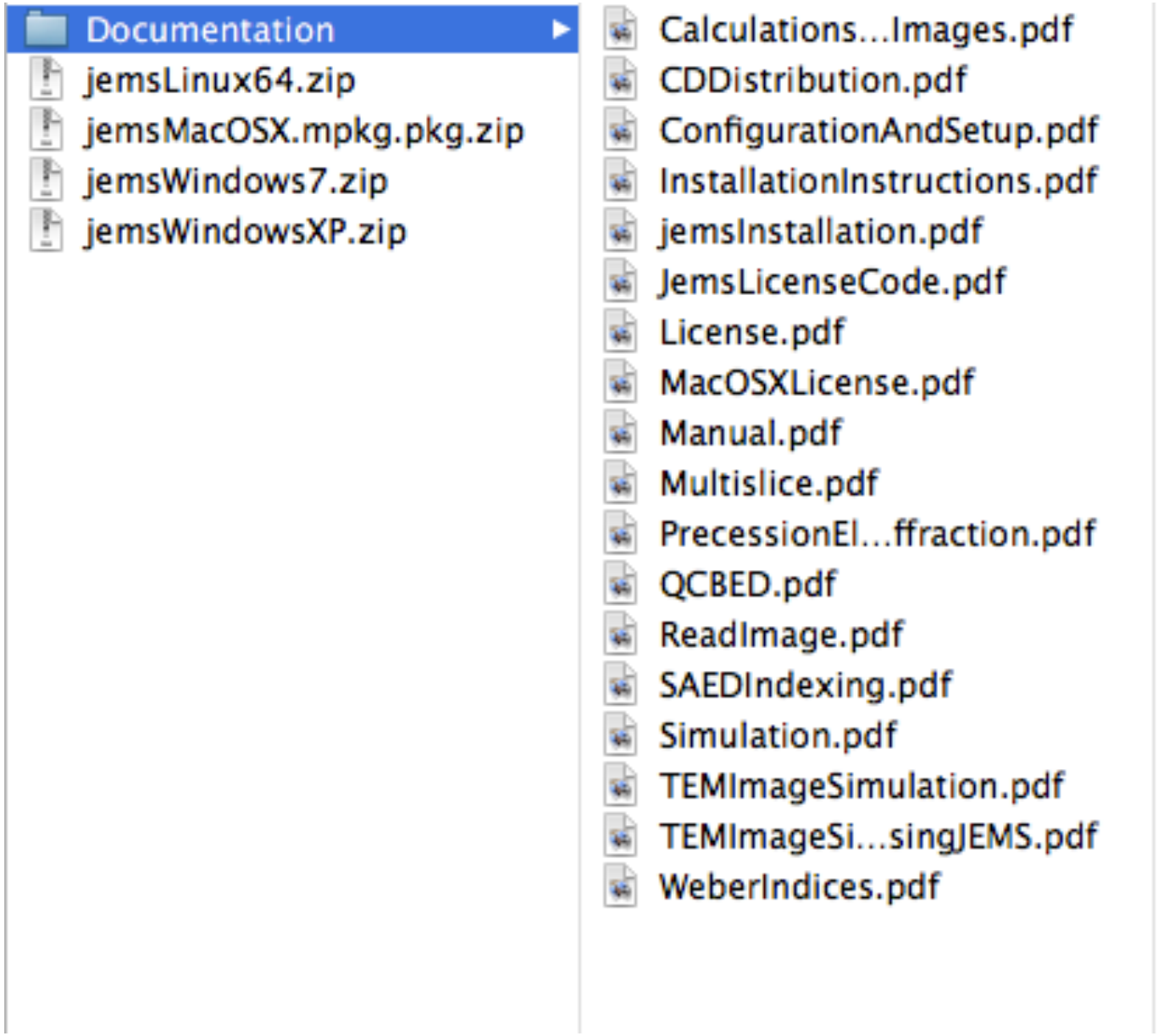


Figure: Documentation folder contains .pdf files explaining how to perform simulations using jems.

Today's *Travaux dirigées*

- Defining a new crystal and checking it.
- Structure factors and powder pattern, comparison with X-ray or neutron patterns.
- Setting a [uvw] crystal orientation and microscope parameters.
- SAED kinematical and dynamical diffraction patterns:
  - HOLZ lines.
  - Kikuchi lines.
- CBED and LACBED.
- PED (precession electron diffraction).
- HRTEM image simulation:
  - Bloch waves approach.
  - Multislice approach.
- Measuring CCD MTF.
- HAADF.
- ....