Requesting a license code

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September 21, 2019

Contents

1 Introduction **3**
1.1 Important note . . . 3

2 How to configure jems e-mail sub-system **4**

3 How to send the license request **5**
3.1 Note for WiFi internet connection . . . 8

4 Requesting a license code and serial number **9**

5 Configuring jems **11**

6 JEMS: preferences **11**
6.1 *Debug* tab . . . 14
6.2 *Display* tab: powder lines drawing . . . 15
6.3 *Imaging* tab . . . 16
6.4 *Mail* tab . . . 17
6.5 *Microscope* tab . . . 18
6.6 *Miscellany* tab . . . 19
6.7 *Save As* tab . . . 20
6.8 *VM memory* tab . . . 21
6.9 *Web help* tab: addresses of local and remote help files . . . 23
6.10 *Save* preferences . . . 24
6.11 Folder /jems . . . 25

7 Opening a crystal file **26**
7.1 Opening **.txt** crystal structure 26
7.2 Importing a **.cif** crystal structure 27
7.3 CIF dataset selector dialogue 28
7.4 Checking the .cif structure 30
7.5 Checking the space-group 32
7.6 Space-group dialogue 33
7.7 Unconventional space groups: RPS code dialogue 34
7.8 Selecting a crystal structure: **File**→**Select** 35
7.9 Select crystal dialog 36

1 Introduction

Follow the following procedure to request a jems license code and serial number on Mac OS-X or Windows (Linux):

1. Unzip jemsMacOSX.pkg.zip
2. Install the package.
3. Drag .../Applications/jemsMacOSX/JemsMacOSX.app into the dock.
4. Start jems and send the license request.

1.1 Important note

Since jems version 4.5000, jemsMacOSX.app contains a fully configured javaVM and there is **no need** to install java 1.6 or any other java VM version.

2 How to configure jems e-mail sub-system

The *jemsMacOSX* application is found in folder **.../Applications/jemsMacOSX** (Fig. 1). It must stay there! Only drag the icon into the **Dock**.

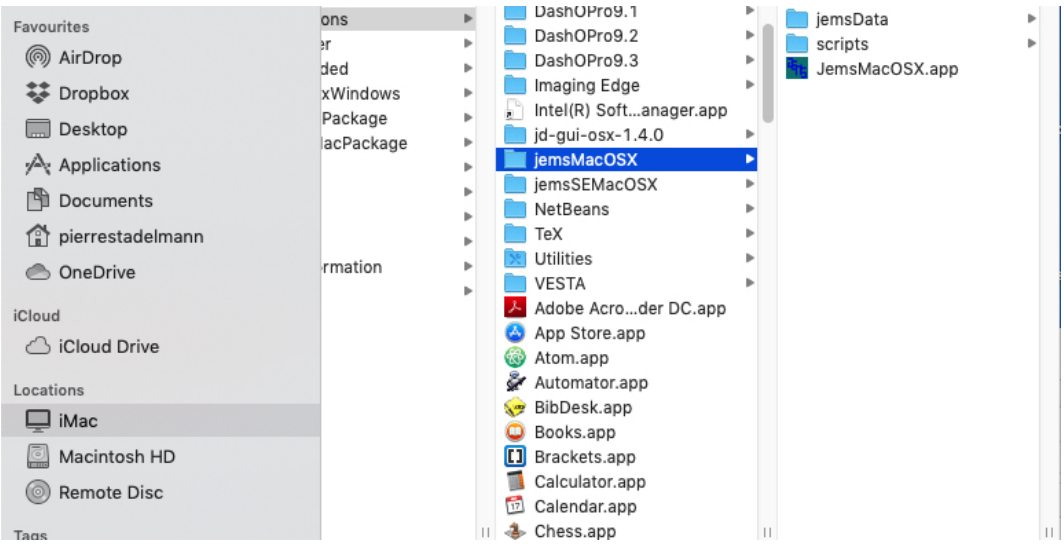

Figure 1: The *jems* application.

Start jems. Use menu item *Preferences* of menu *Parameters* to setup jems e-mail sub-system. Select tab *Mail* (Fig. 3) to enter the SMTP server address (Small Message Transfer Protocol) of your institution (Fig. 2) and your e-mail address.

Cross the *Save* checkbox to register these information and exit the *Preferences* dialogue.

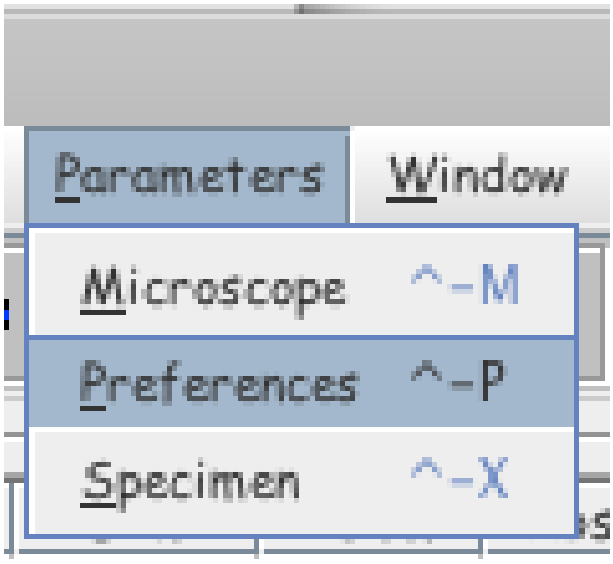

Figure 2: Accessing jems *Preferences*.

3 How to send the license request

Finally, restart jems and request the license code and serial number. Activate menu item **License** of menu **Help** as show in Fig. 4.

The **License** dialogue contains 3 tabs (Fig. 5):

1. **License** displaying the *Host*, *Unique ID*, *Serial* and *License*.

2. **Request** to send the license request.

3. **Version** displaying jems version.

The *Host* name text field shows the host name of the PC, the *Unique ID* a unique identifier of the PC that is used to generate the license code (when unique) and the *Serial* and *License* are provided after receiving the license request. These strings are case sensitive. The host name and the *Unique ID* are obtained directly on the computer and can't be modified. The license code is generated from the *Host* or the *Unique ID* and the *Serial* number strings. The *Serial* number is supplied with the license code [1].

[1] The *Unique ID* is usually made of a sequence of letter and integers as show in Fig. 5.

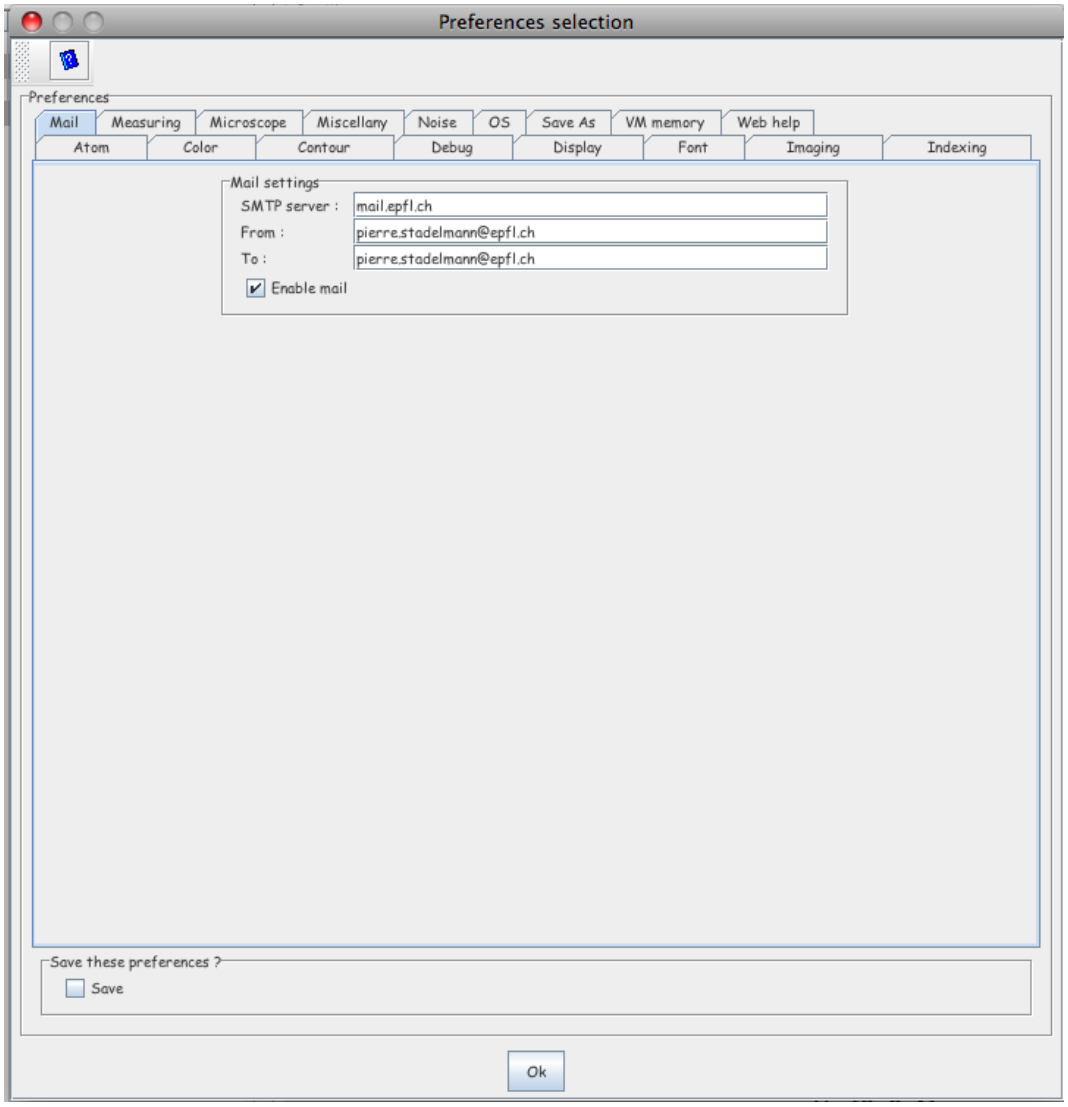

Figure 3: *Mail* tab of *Preferences* dialogue.

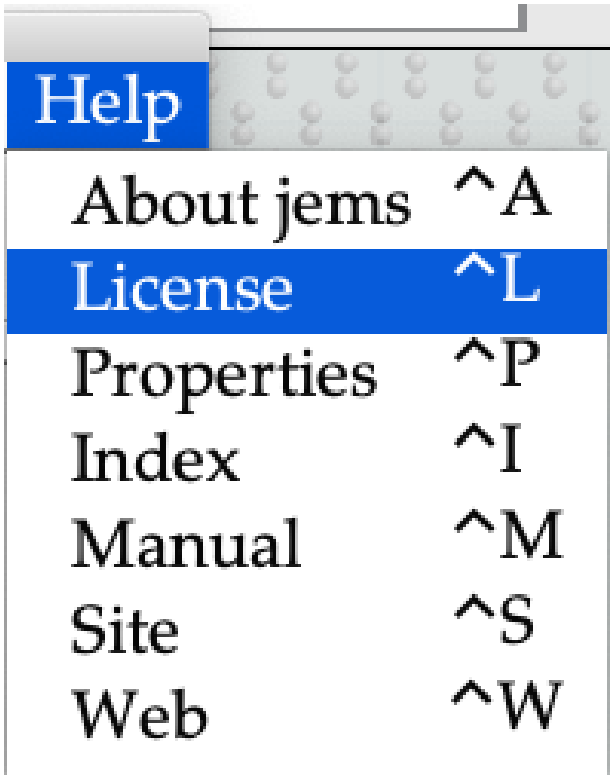

Figure 4: Requesting a license code using menu item *License* of menu *Help*.

The license code is obtained as described in the next section.

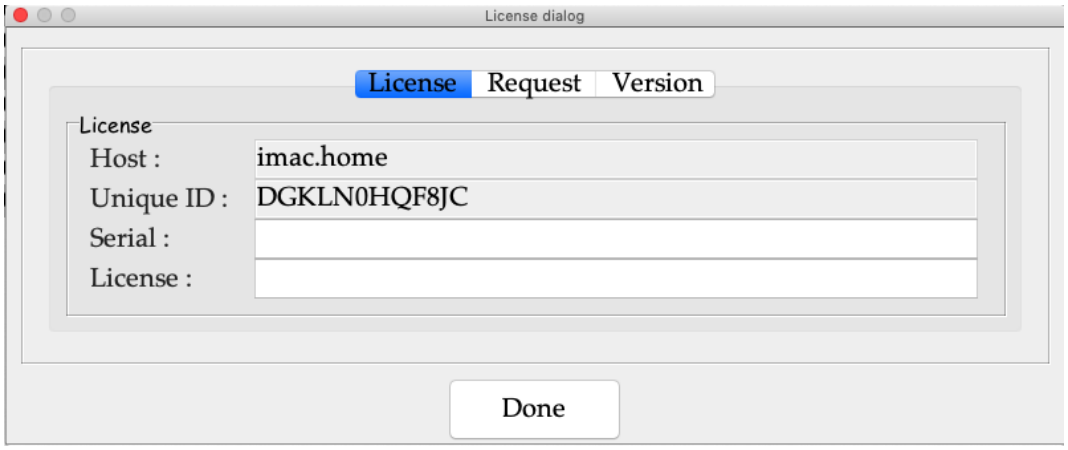

Figure 5: The 3 tabs of the *License* dialogue.

3.1 Note for WiFi internet connection

WiFi internet connection using DHCP attributes a dynamic hostname to the PC. When jems license code is based on its static hostname, i.e. there is no Unique ID, it is necessary, when both internet and jems need to run simultaneously, to stop WiFi, start jems and then restart WiFi.

This is also necessary when requesting the license code:

1. Stop WiFi.
2. Start jems, fill the request license form.
3. Start WiFi.
4. Send the form (either directly from jems when allowed by the firewall, or copy/paste the form in your regular mail program).

4 Requesting a license code and serial number

Select the *Request* tab and push the *Request* button. The dialogue shown in Fig. 6 should appear.

In the *Mail::request license* dialogue, fill in the *Name*, *First name*, etc. text fields and push the **Send** button. The message shown in Fig. 7 must be displayed. When not, you might be behind a firewall. In such a case copy/paste the dialogue content in your regular e-mail program. It Also possible to use SSL messaging:

- Check the *Use SSL* checkbox.
- Enter your SSL login name (used to connect to your mailbox).
- Provide the password of your mailbox.

When there are still problems sending the request. Copy/Paste the content of the Message text area in a regular email. The message also appears in the console window.

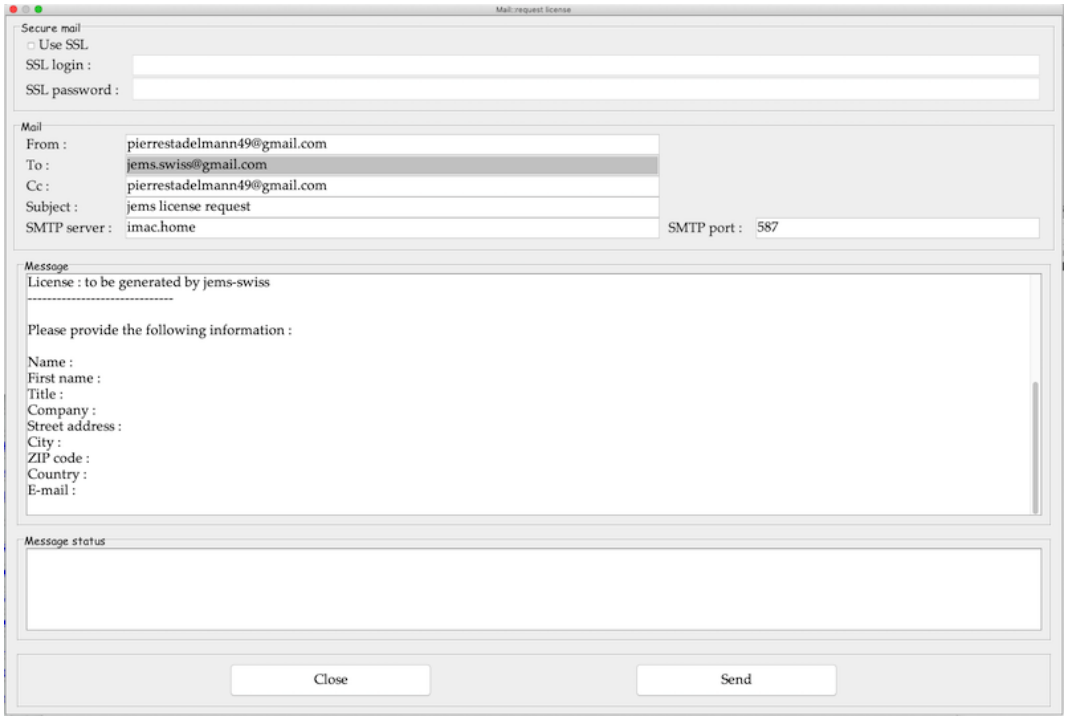

Figure 6: The dialogue requesting the jems code.

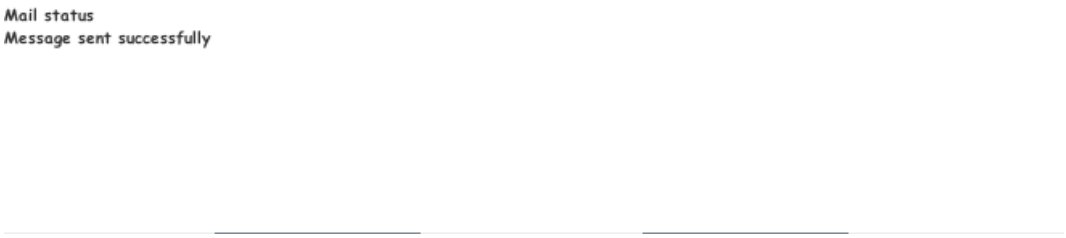

Figure 7: The license request has been successfully sent.

5 Configuring jems

The *Preferences* dialogue allows to configure jems. It is activated as shown in Fig. 8. Detailled instructions are provided in the following paragraphs.

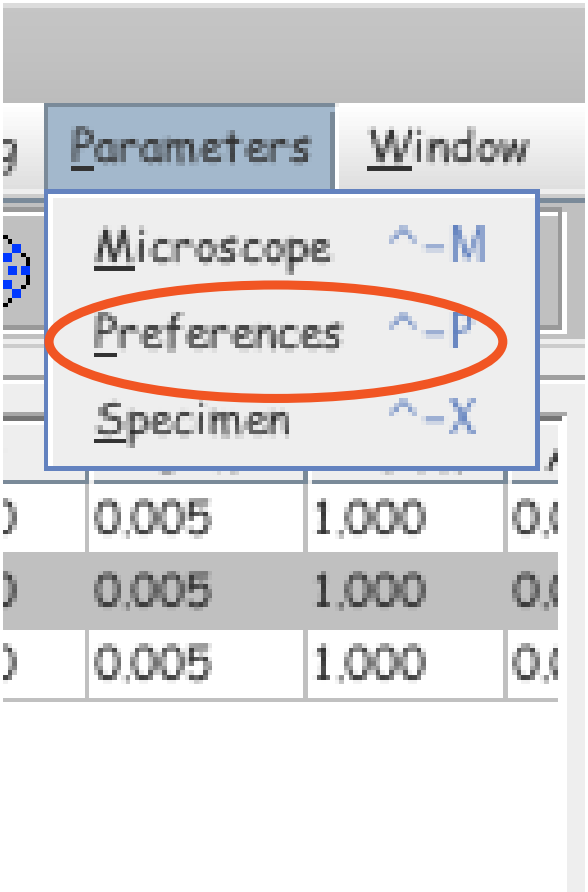

Figure 8: *Configuring jems: menu* ***Parameters*** → ***Preferrences***

6 JEMS: preferences

The dialogue selecting user's preferences is show in Fig. 9.

The preferences are organized in several tabs:

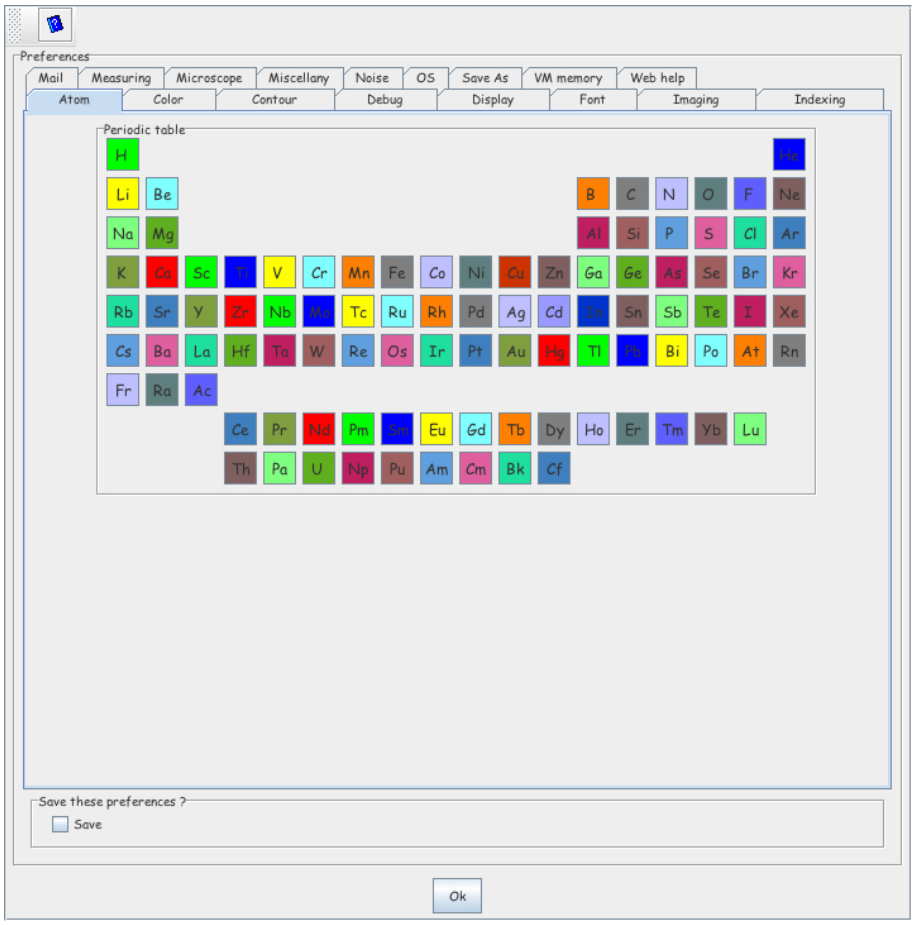

Figure 9: *Dialogue for selecting user preferences.*

1. **Debug**: debugging options, number cores (cpu).

2. **Display**: display options (3-D models and (hkl) powder lines).

3. **Imaging**: size of graphics areas, maximum size of images, java 3-D, holography and site occupancy.

4. **Mail**: SMTP address, user e-mail address.

5. **Microscope**: default microscope.

6. **Miscellany**: default crystal.

7. **Save As**: format of saved images and drawings.

8. **VM memory**: minimum and maximum memory allocated to java VM.

9. **Web help**: addresses of help files.

The tabs are shown in the Figures 10 - 18:

6.1 *Debug* tab

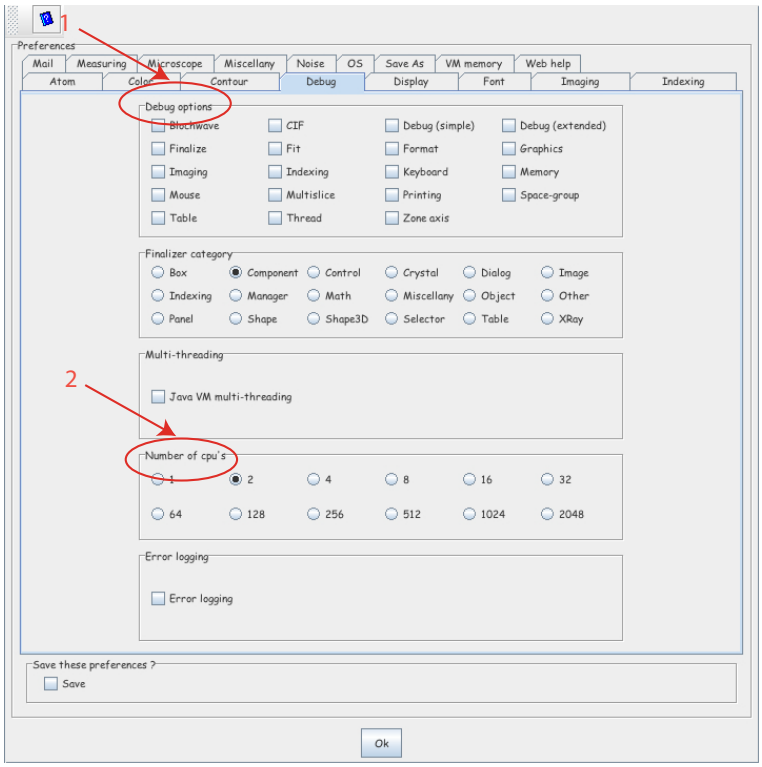

Figure 10: *Debug tab allows to display in the console details of most calculations: : debug (1) & cores number (2).*

6.2 *Display* tab: powder lines drawing

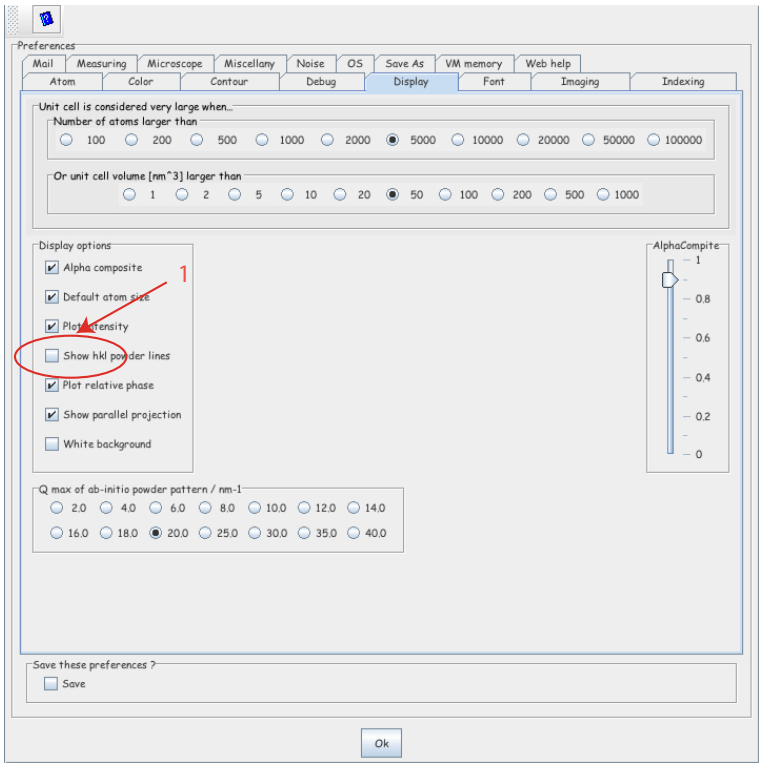

Figure 11: *Display tab sets graphical options (do not set* ***Show hkl powder lines*** *(1) when structure is large).*

6.3 *Imaging* tab

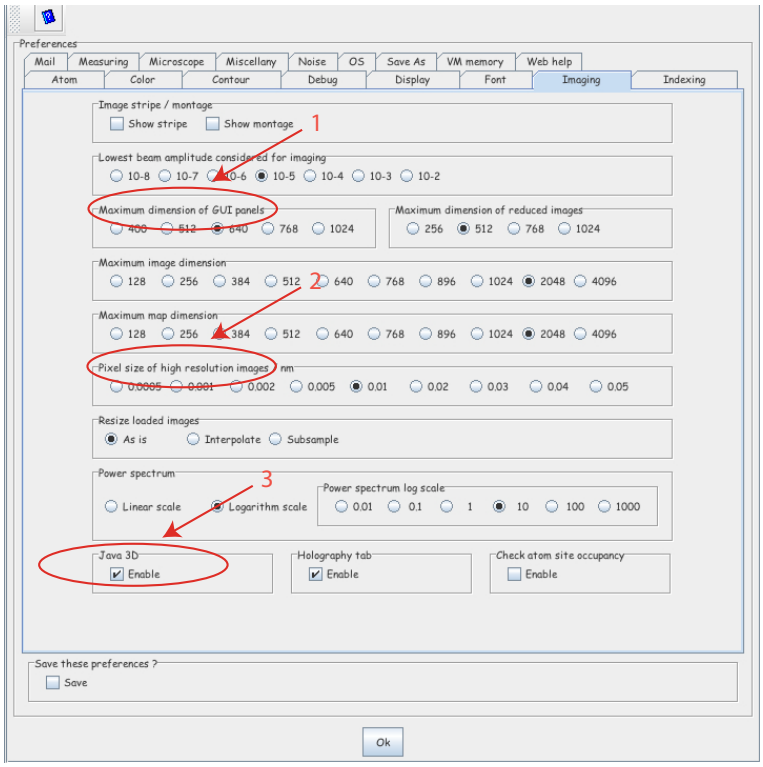

Figure 12: *Imaging tab sets imaging options and allows java 3-D: size of GUI panels (1), images (2) & java 3-D (3)*

6.4 *Mail* tab

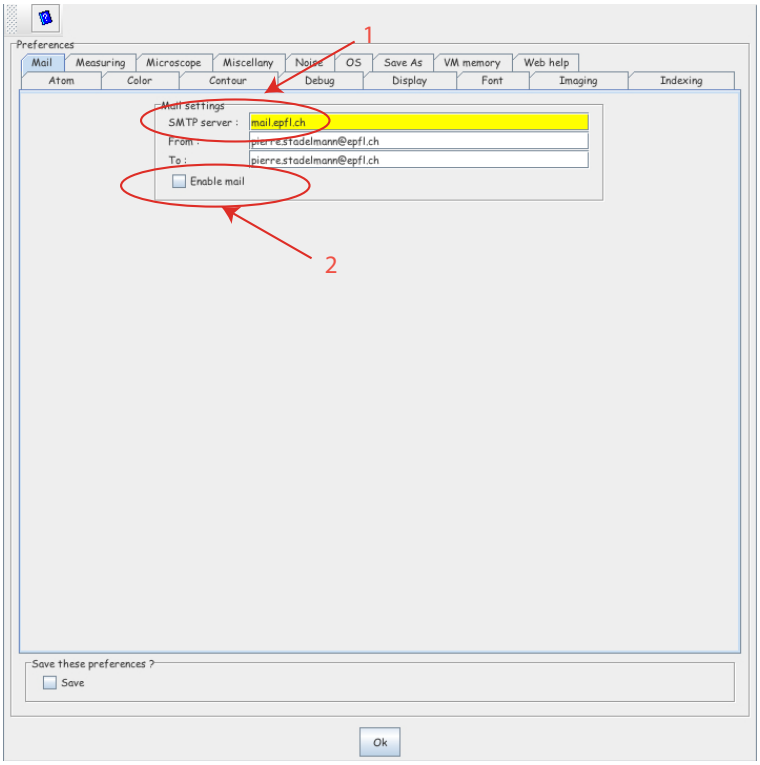

Figure 13: *Mail tab defines SMT and e-mail addresses: SMT (1), e-mail address & error reporting (2).*

6.5 *Microscope* tab

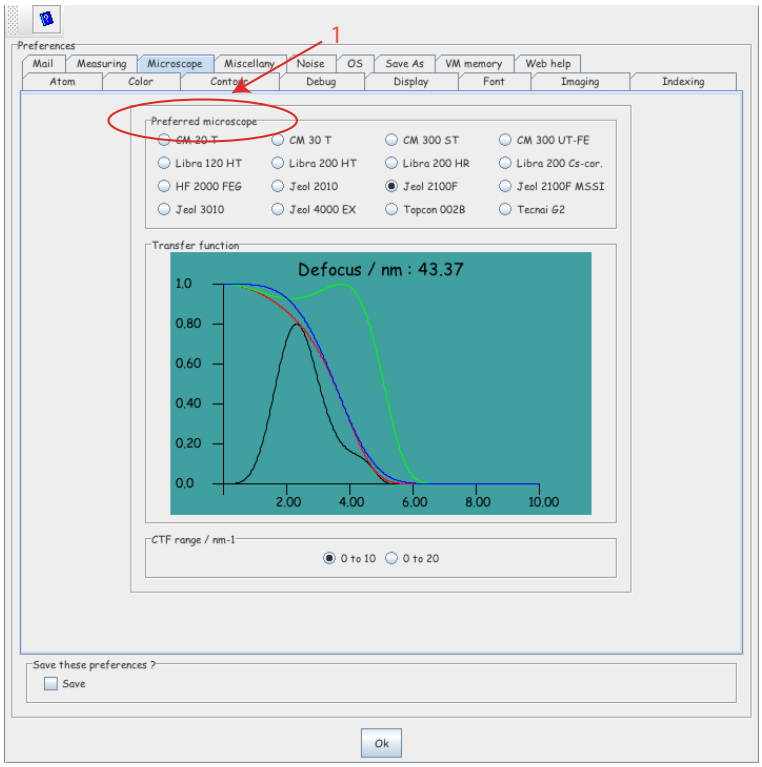

Figure 14: *Microscope tab defines default microscope (1).*

6.6 *Miscellany* tab

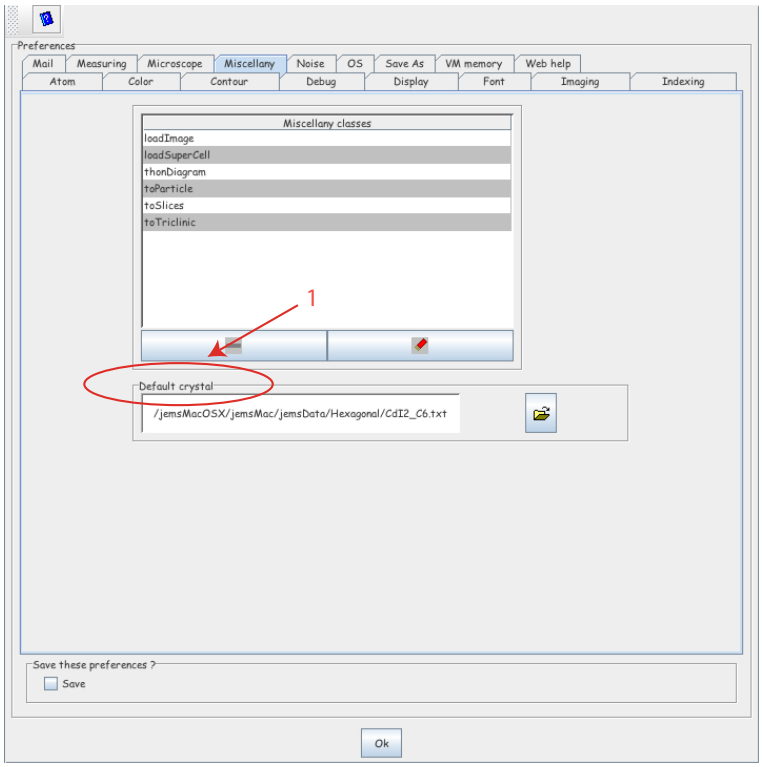

Figure 15: *Miscellany tab defines default crystal (1).*

6.7 *Save As* tab

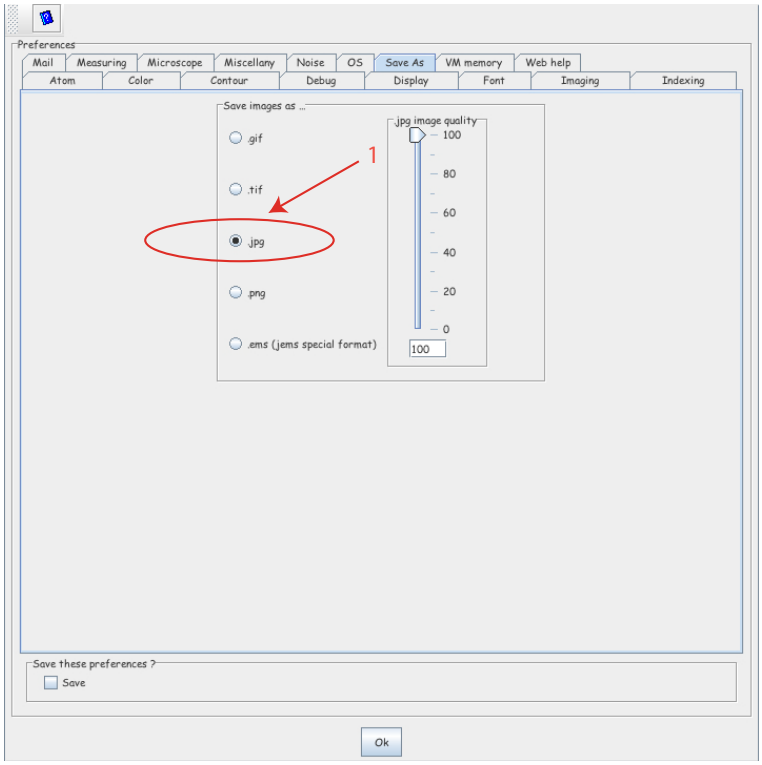

Figure 16: *Save As tab defines the image format (1).*

6.8 *VM memory* tab

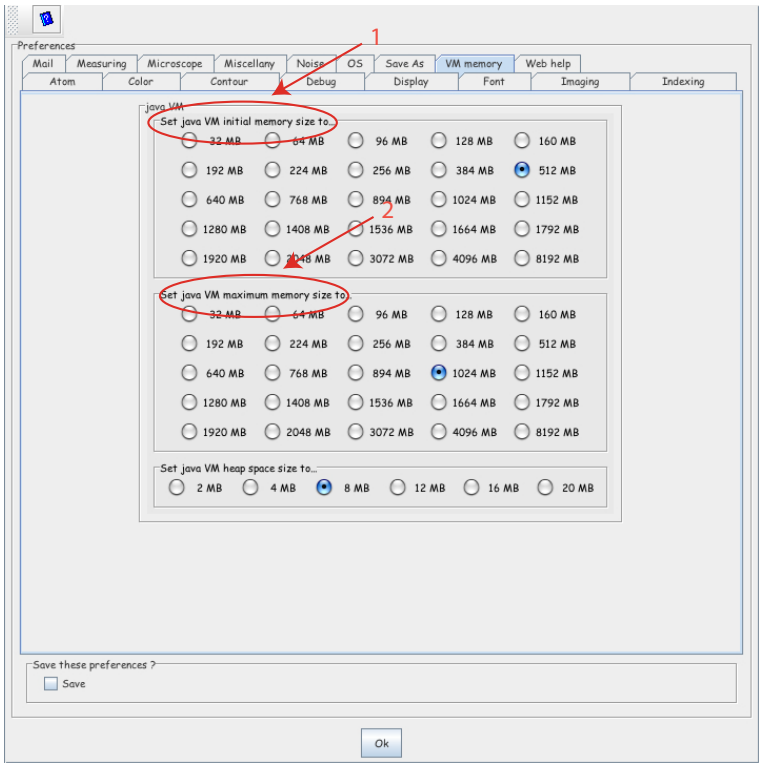

Figure 17: *VM memory tab defines how much memory must be allocated to java VM: min (1) & max (2). Make sure that the minimum is not larger than one half the RAM size.*

A very slow jems **startup** generally means that the minimum RAM memory allocated is larger than the available physical RAM (memory is allocated on the hard disk).

When jems does start after several minutes, it is necessary to edit the jre configuration files (Windows: jems.lax or jems.bat, Mac OS-X: info.plist) and to reset the VMOptions parameters to something like **-J-Xms512M -J-Xmx1024M -J-Xss4M** for Windows or **-Xms512M -Xmx1024M -Xss4M** for Mac OS-X).

1. -J-Xms512M: initial size RAM allocated for java VM.

2. -J-Xmx1024M: maximum size RAM allocated for java VM.

3. -J-Xss4M: maximum stack size.

When only 1 GB RAM is available set these parameters to:

1. -J-Xms256M: initial size RAM allocated for java VM.

2. -J-Xmx512M: maximum size RAM allocated for java VM.

3. -J-Xss2M: maximum stack size.

6.9 *Web help* tab: addresses of local and remote help files

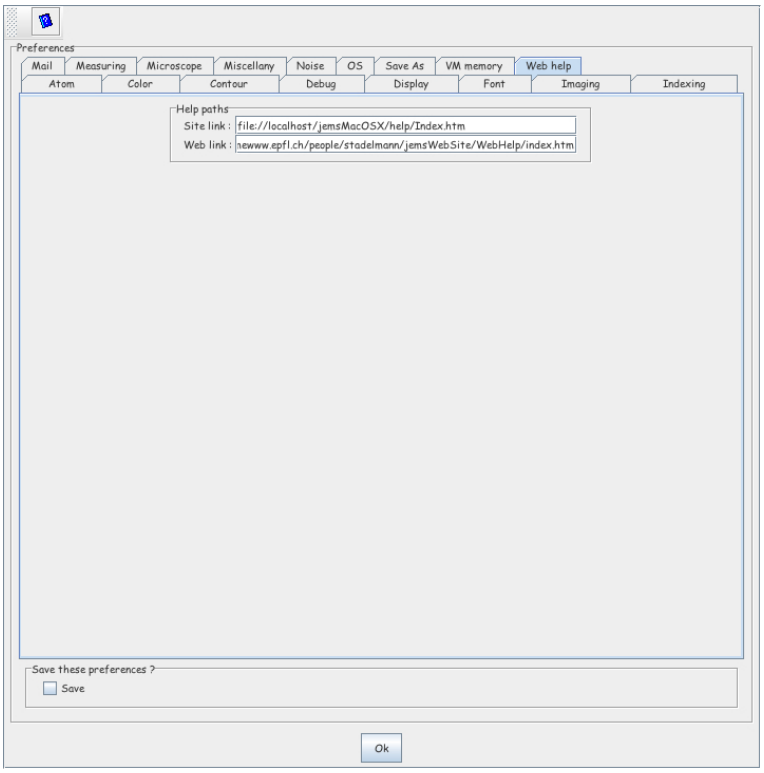

Figure 18: *Web help tab defines the http address of help files. You can develop your own web site of help files.*

6.10 *Save* preferences

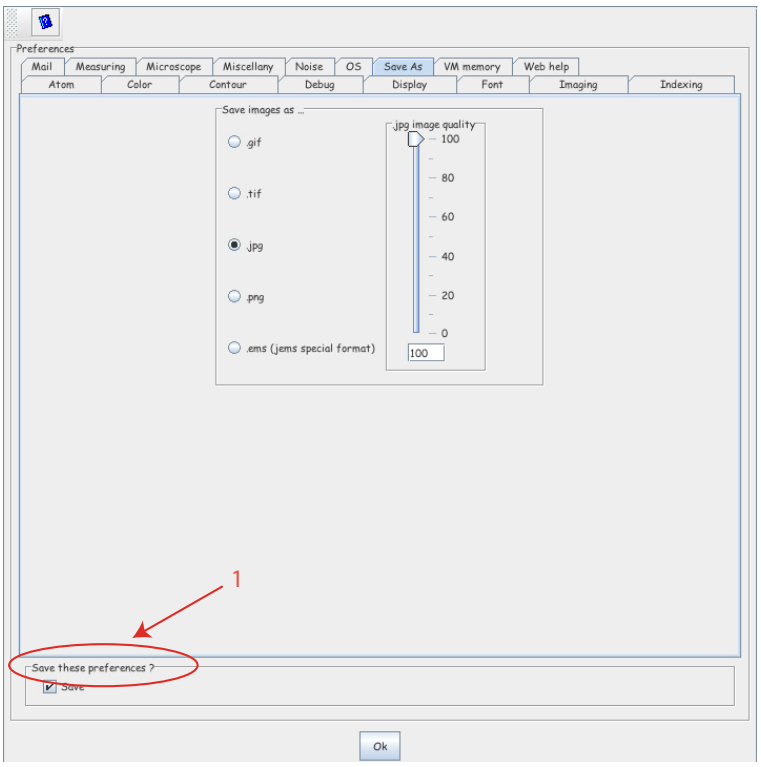

Figure 19: *Before leaving the Preferences dialogue, save your preferences. A file* ***jemsPreferences.txt*** *is created in your home directory in folder /jems.*

6.11 Folder /jems

The folder /jems of your home directory contains:

1. jemsPreferences.txt, your preferences.

2. jemsLicense.txt, a copy of the license code.

3. jemsMicroscopes.txt, the microscopes' parameters.

These files are automatically created by jems and should not be edited.

7 Opening a crystal file

- 3 kinds kinds of crystal files

  1. jems .txt files (default). Many are found in folders jemsData/cubic, jemsData/hexagonal...

  2. ICSD or AMS .cif files.

  3. Selectable crystal structures.

7.1 Opening .txt crystal structure

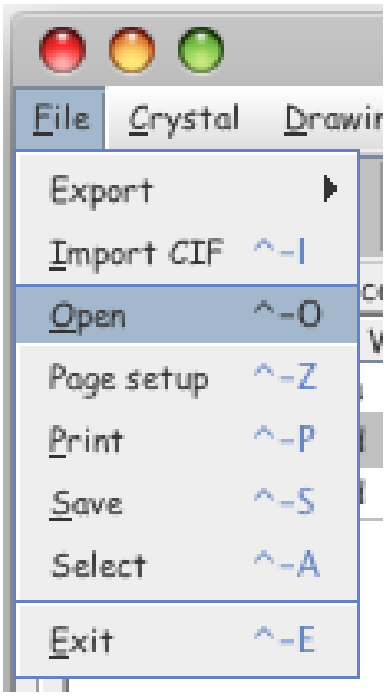

Figure 20: **File** → **Open**.

Naturally a particular crystal structure is usually not found in the jems set of crystal structures. You have to look for it either in the ICSD or AMS data bases or to define it using published data.

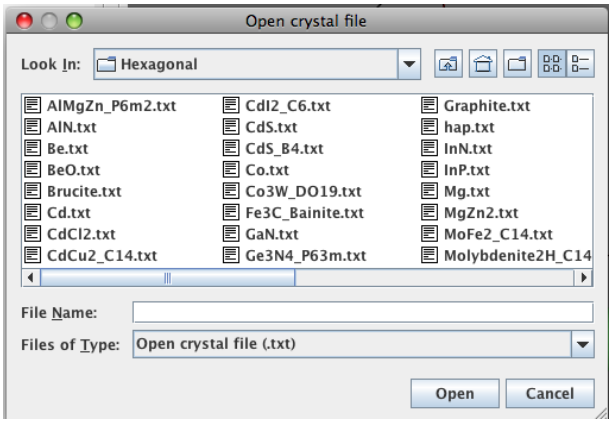

Figure 21: Selecting a crystal file.

7.2 Importing a .cif crystal structure

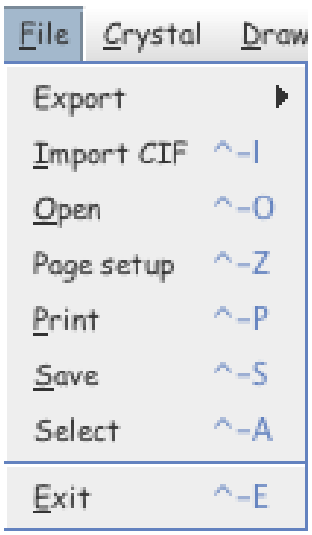

Figure 22: **File** → **Import**.

A **.cif** file can contains up to 100 different crystal structures. A particular one can be selected using the **CIF dataset selector dialogue**.

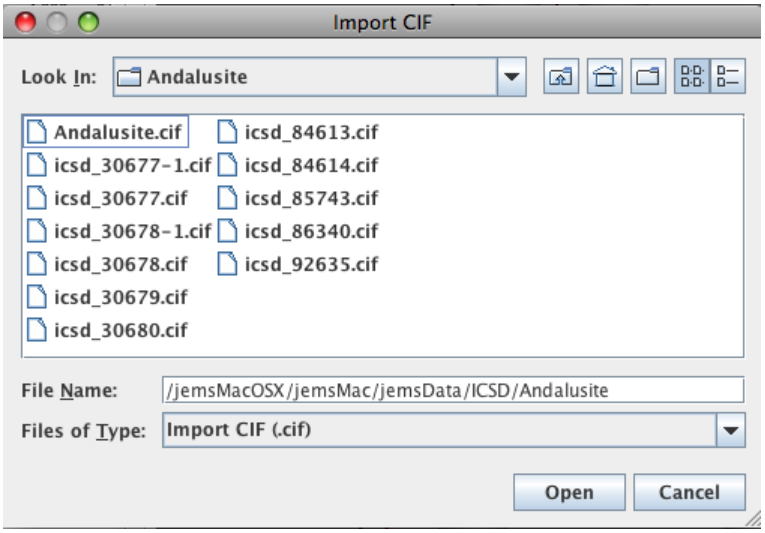

Figure 23: Selecting a **.cif** file.

7.3 CIF dataset selector dialogue

Figure 24: Selecting a **.cif** crystal structure, (1) crystal selection & (2) projected structure.

7.4 Checking the .cif structure

It is necessary to check the .cif structure since it may happen that its space-group description is non-standard. By default the .cif structure can't be saved (Fig. 25). The jems console (Fig. 26) displays some of the properties of the .cif file. Locate the space-group description and verify that it is recognized by jems.

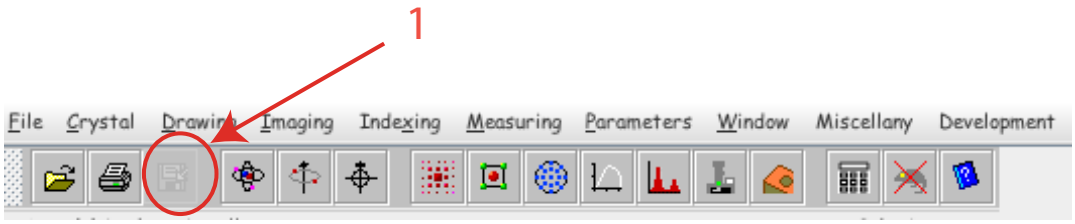

Figure 25: The space-group must be confirmed before saving the crystal structure as a **.txt** jems cystal structure. The **File**→**Save** or **Save icon** (1) are unavailable.

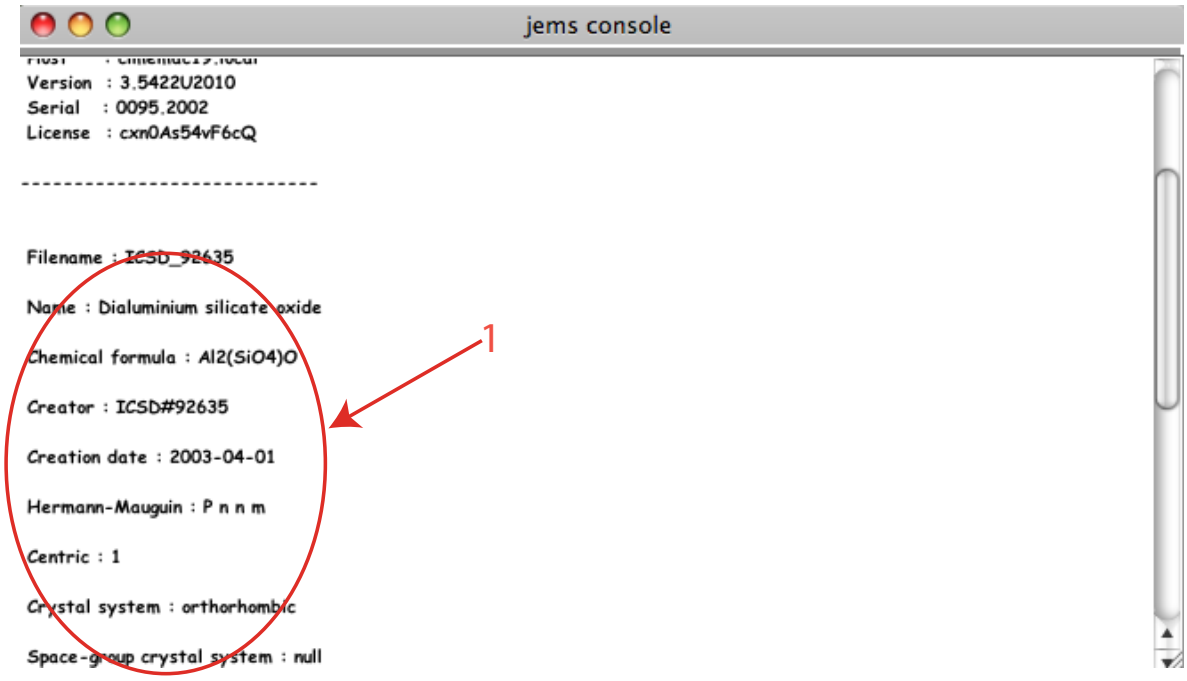

Figure 26: The jems console displays the crystal system and space-group read from the .cif structure.

7.5 Checking the space-group

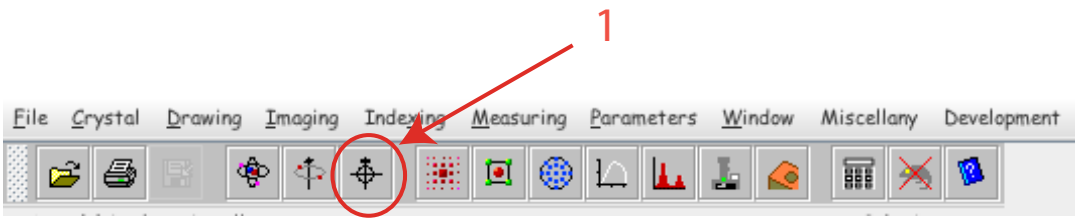

Figure 27: *Open the space-group dialogue using either* ***Crystal→System→Space-group*** *or the* ***Space-group icon*** *(1).*

7.6 Space-group dialogue

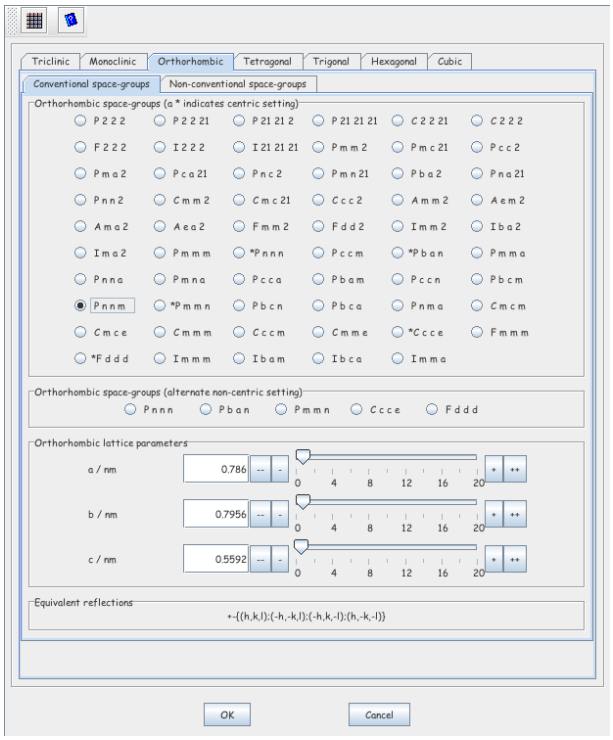

Figure 28: *Select the proper crystal system and the space-group (even when it is already selected). This will make the* ***File→Save*** *or* ***Save icon*** *(1) available to save the* ***.cif*** *structure as a* ***.txt*** *one.*

7.7 Unconventional space groups: RPS code dialogue

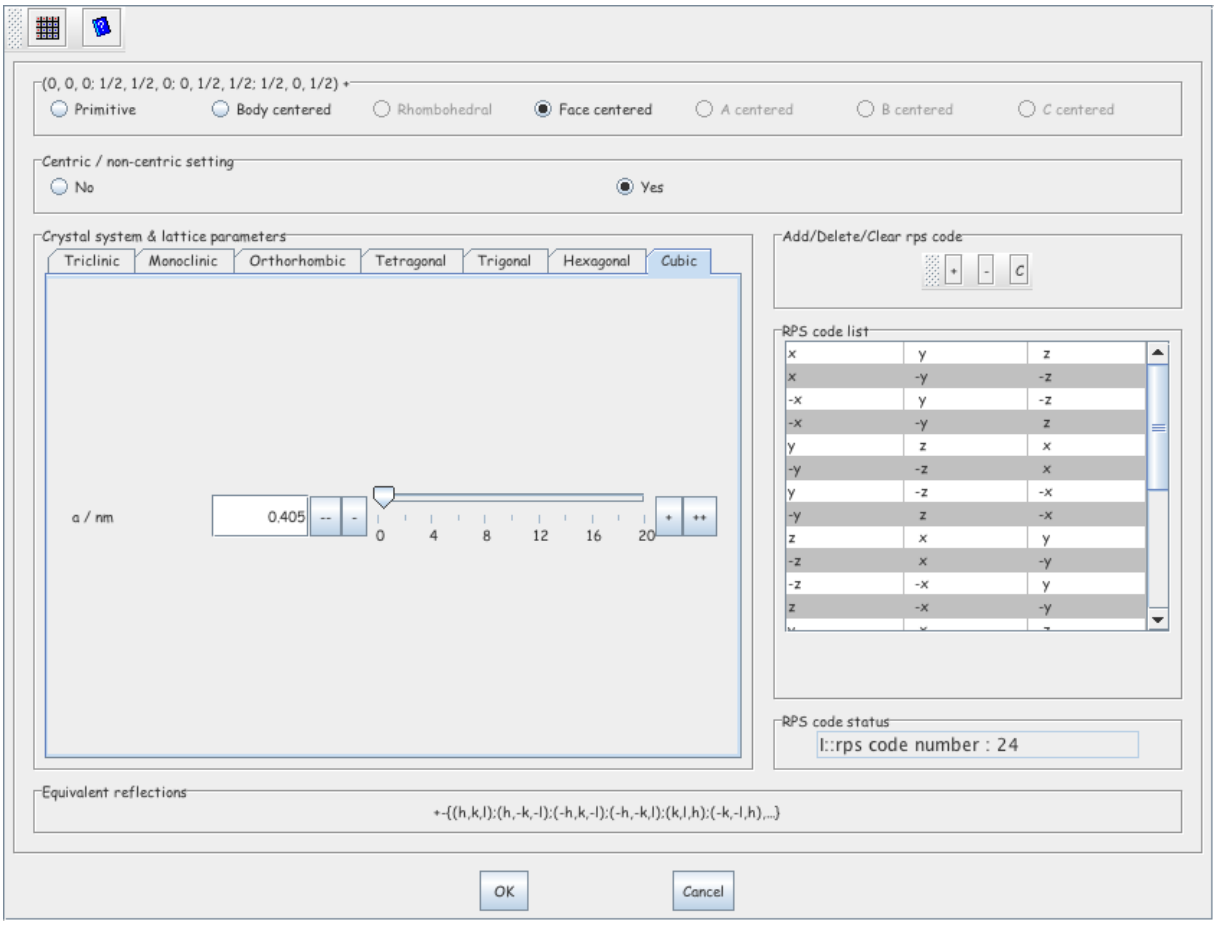

Figure 29: *For unconventional space-groups* use the *RPS code* dialogue to define the symmetry operations.

7.8 Selecting a crystal structure: File→Select

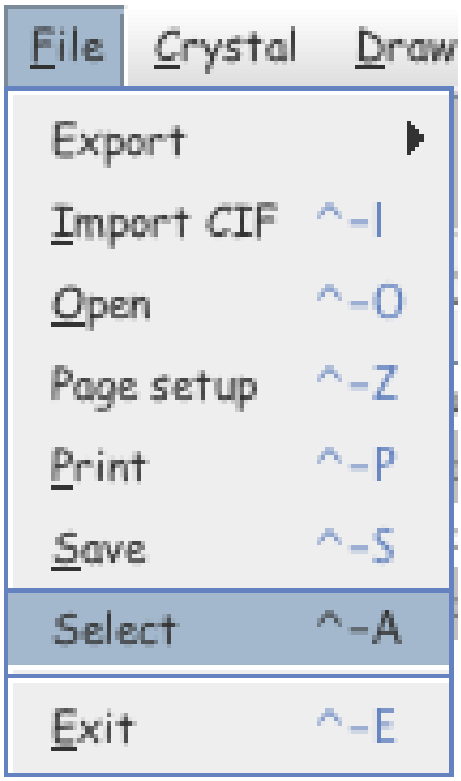

Figure 30: *Selecting a crystal structure among a set 42 predefined ones.*

7.9 Select crystal dialog

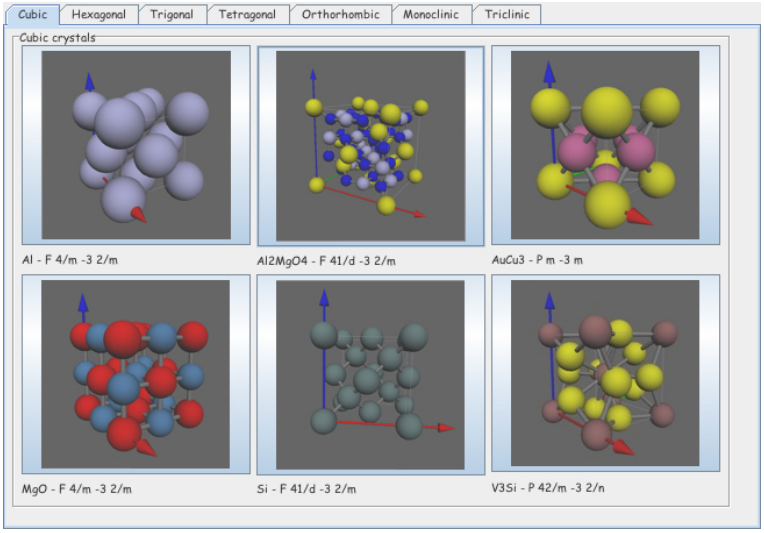

Figure 31: *The 42 defined crystals are grouped in 7 crystal systems.*