RAISE Tools Installation Guide for Windows

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1 How to install the RAISE tools for Windows

1.1 Compatibility

The installation guide has successfully been tested in an English Windows XP Professional SP2 environment.

1.2 How to install Standard ML of New Jersey

Download `smlnj.zip` from the Tools folder in the course file sharing under CampusNet or http://www.iist.unu.edu/newrh/III/3/1/docs/rsltc/sml/smlnj.zip. (You might be able to use a newer version of SMLNJ, but the official releases do not seem to work out of the box.)

The installation

1. Create an installation folder for SMLNJ (e.g. `c:\sml`).
2. Unpack `smlnj.zip` in the installation folder.
3. Add `<SML folder>\bin` to the `Path` environment variable where `<SML folder>` should be replaced by the absolute path to the installation folder.
4. (Do this part after the installation of rsltc) Add an environment variable `SMLNJ_HOME`, set to the absolute path of the installation folder.

1.3 How to add Latex support

If you do not have MikTex (Latex for Windows), download and run the newest Basic MikTex installer from http://miktex.org. The following steps were tested using MikTex 2.6 and MikTex 2.7

Download the following files

`boxedminipage.sty` and `rslenv.sty` from the Tools folder in the course file sharing under CampusNet, or http://www.iist.unu.edu/newrh/III/3/1/docs/rsltc/latex/boxedminipage.sty

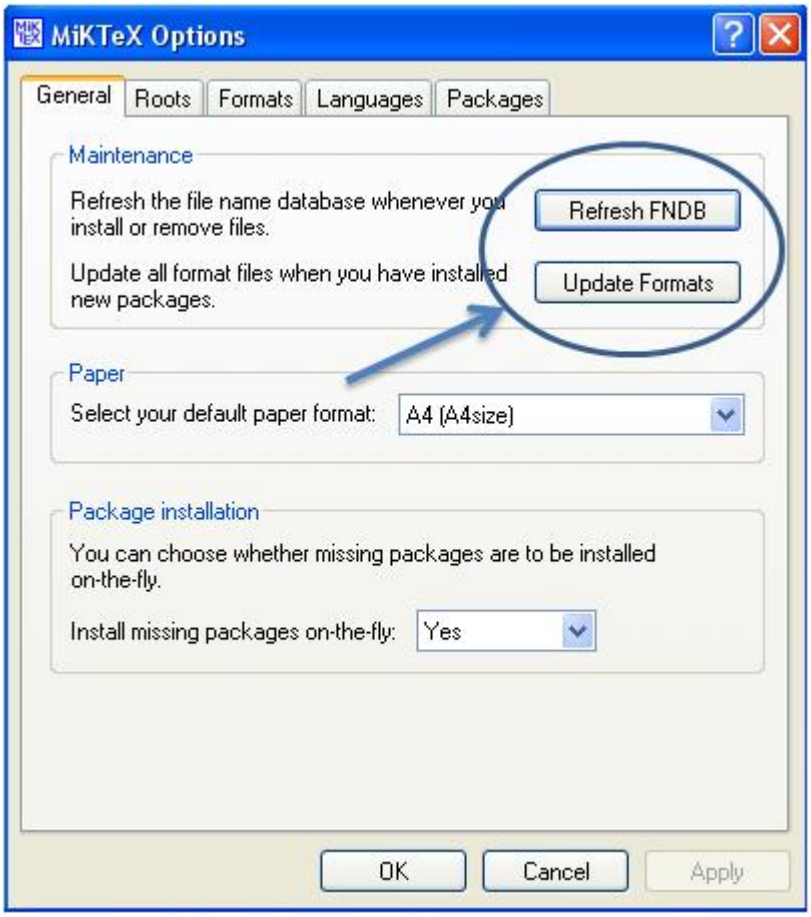

Figure 1: MikTex 2.6 Settings

http://www.iist.unu.edu/newrh/III/3/1/docs/rsltc/latex/rslenv.sty
and store them in `<MikTex folder>\tex\latex\base` where `<MikTex folder>` should be replaced by the absolute path to the MikTex folder.

Update the package database
Open the MikTex *Settings* from the start menu. Press *Refresh FNDB* and *Update Formats* as shown on figure 1. Press *OK*.

1.4 How to install rsltc and emacs

Download and run
`RAISE_admin_setup.exe` from the Tools folder in the course file sharing under CampusNet or http://www.iist.unu.edu/newrh/III/3/1/docs/rsltc/windows/RAISE_admin_setup.exe

The installation process
You must install the tools in `c:\raise`. Other paths do not seem to work. Select *Choose emacs, RAISE tool, and VCG*. You need to reboot after the installation.

Fixing SMLNJ
The installation will set the environment variable `SMLNJ_HOME` to `c:\sml`. If you have chosen another installation directory for SMLNJ, you must set `SMLNJ_HOME` to the actual path.

Fixing the emacs configuration
After the installation, emacs will be located in `c:\emacs`. Open the text file `c:\emacs\_emacs` and do the following modifications:

In order to enable Latex-support for RSL within emacs, add the following lines at the bottom of the file:

```
;;; Facilities for RSL-Latex support
;; Loading files for RSL-Latex support (rslconvert loads tokenise):
(load "rslconvert.el")

;; Function for converting RSL formulae in ascii syntax to latex
;; The formulae are placed between \RSLatex and \endRSLatex
(defun rsl2latex ()
  "Do rslatex on buffer"
  (interactive)
  (dolatex))

;; Function for undoing the above conversion
(defun latex2rsl ()
  "Undo rslatex on buffer"
  (interactive)
  (undolatex))

;; Setting up function keys
;; Pressing f2 invokes 'dolatex' on the whole buffer
;; Pressing f3 invokes 'undolatex' on the whole buffer

(global-set-key [f2] 'do-latex)
(global-set-key [f3] 'undo-latex)
```

If you do not intend to install SAL and Cygwin (the installation is not required):

Add comments to the following lines:

```
;; Support Cygwin
(require 'cygwin-mount)
```

```
(cygwin-mount-activate)

;; Set up name of Cygwin shell
(setq explicit-shell-file-name "c:/cygwin/bin/bash.exe")
;; can then switch to Cygwin by
;; (setq shell-file-name explicit-shell-file-name)
```

So that they look like this:

```
;; Support Cygwin
;;;;(require 'cygwin-mount)
;;;;(cygwin-mount-activate)

;; Set up name of Cygwin shell
;;;;(setq explicit-shell-file-name "c:/cygwin/bin/bash.exe")
;; can then switch to Cygwin by
;; (setq shell-file-name explicit-shell-file-name)
```

2 A few remarks

Emacs does not seem to handle paths containing spaces. Combining emacs, RSL, and paths containing spaces (e.g. `c:\Documents and Settings\...`) might cause troubles.

3 Testing the installation

Syntax highlighting
Execute `c:\emacs\bin\runemacs.exe` in order to start emacs. Make a file called `X.rsl` within emacs and add the following content:

```
scheme X =
  class
    test_case
      [t1]
        1 + 2,
      [t2]
        true \/ false
  end
```

If you do not see any syntax highlighting, check that the `HOME` environment variable is set to `c:\emacs`.

Testing syntax and type checking
In order to type check the specification, select *RSL- Typec check* from the drop down menu.

Testing SML execution

The previously created file `X.rsl` contains executable RSL-code. In order to execute the code, select *RSL-SML-Translate to SML and run* from the drop down menu. If it works, you will probably see something like this:

```
Standard ML of New Jersey v110.59 [built: Mon Jun 05 13:26:49 2006]
- [opening c:/test/X.sml]
[autoloading]
[library $smlnj/cm/cm.cm is stable]
[library $smlnj/internal/cm-sig-lib.cm is stable]
[library $/pgraph.cm is stable]
[library $smlnj/internal/srcpath-lib.cm is stable]
[library $SMLNJ-BASIS/basis.cm is stable]
[autoloading done]
val it = () : unit
val it = true : bool
[autoloading]
[autoloading done]
val it = () : unit
val it = () : unit
[autoloading]
[autoloading done]
val it = () : unit
val it = true : bool
[autoloading]
[autoloading done]
[opening X_.sml]
structure RT_Int : <sig>
structure RT_Bool : <sig>
structure X : <sig>
open X
val it = () : unit
val it = () : unit
val it = () : unit
val it = () : unit
[t1] 3
val it = () : unit
[t2] true
val it = () : unit
val it = () : unit
val it = () : unit
val it = () : unit
val it = () : unit
```

`[t1] 3` and `[t2] true` are results of the execution.

Testing the Latex-support

Create a *.tex* document within emacs and store it in the same folder as `X.rsl`. Add the following lines to the file:

```
\documentclass{article}
\usepackage{rslenv}
\begin{document}
% Remember: alt+x mkdoc
\RAISEIN{X}
\end{document}
```

Within emacs, press *alt* and *x* at the same time. It is now possible to type a command. Type *mkdoc* and hit *enter*. Emacs has now generated a file called `X.tex`. Select *TeX-Tex File* from the drop down menu. Latex will build a dvi-file with the following content:

scheme X =
  class
    test_case
      [t1]
        1 + 2,
      [t2]
        true ∨ **false**
  end