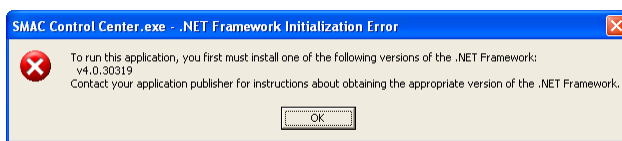# SMAC LAC-X Editor quick start guide.

Version 1.01

Installation

Unpack the zipfile and run the .exe file to install the program.

The installer will create a shortcut on your desktop to start the application:
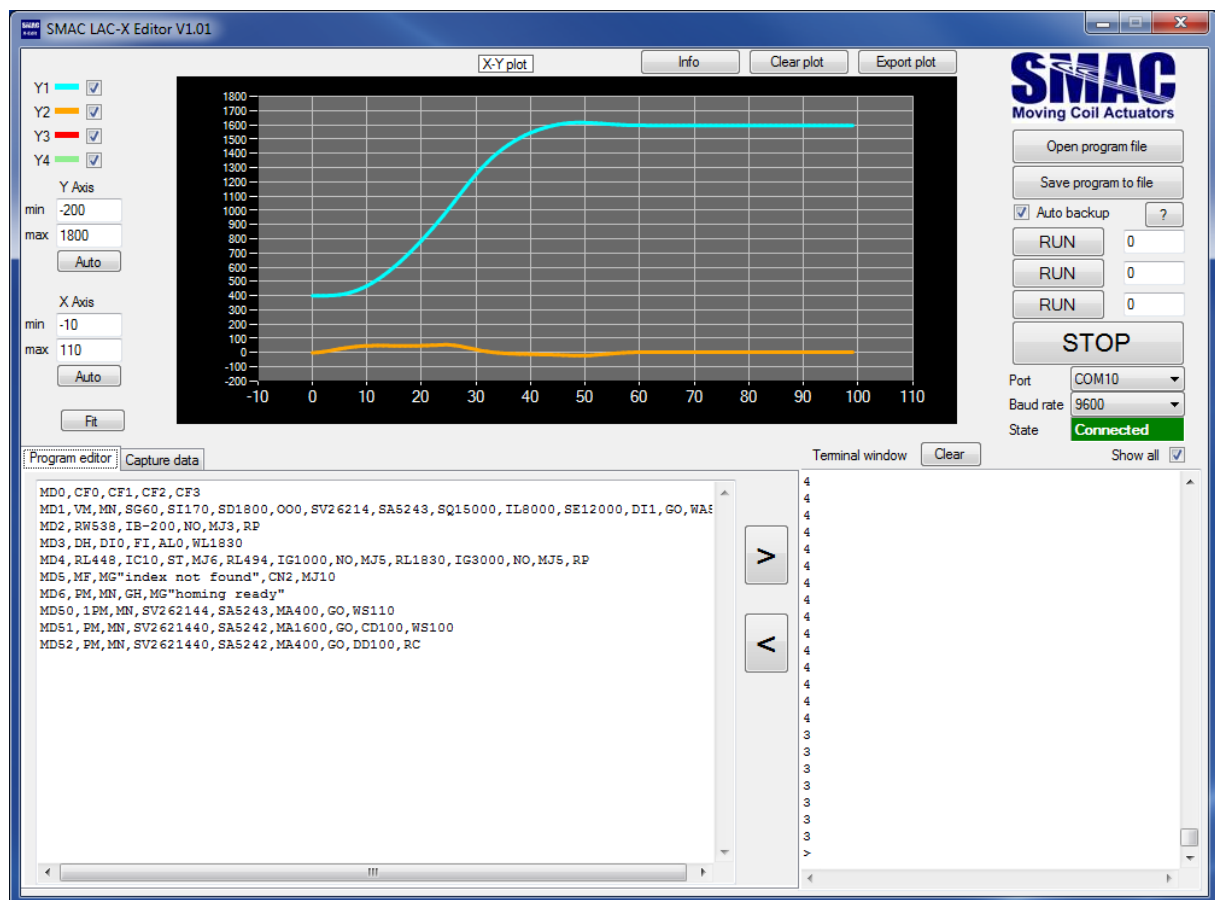

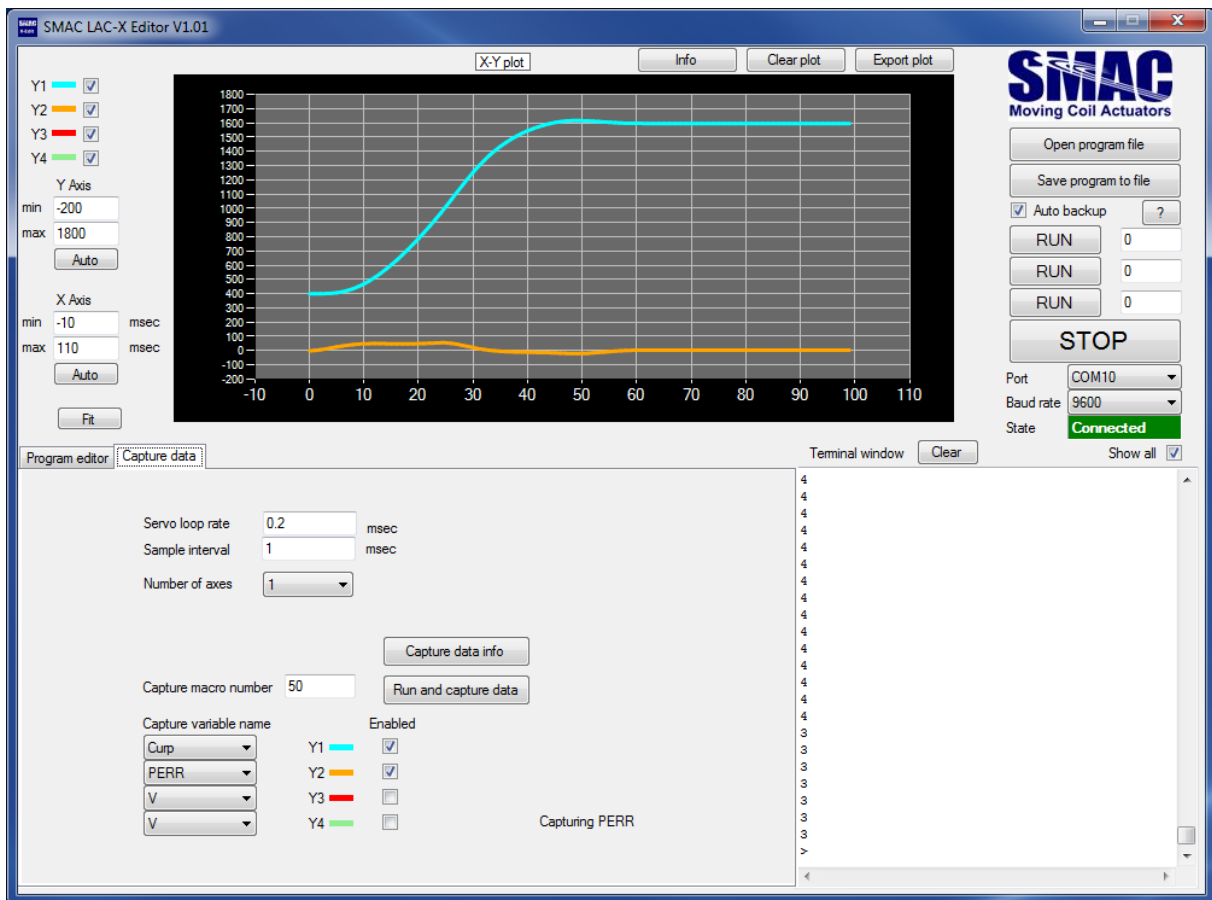If you see an error message like this:

Then you need to install the Microsoft .NET Framework 4 Client Profile which can be downloaded here:

http://www.microsoft.com/en-us/download/details.aspx?id=24872

Screen overview (Program editor tab opened):

Screen overview (Capture data tab opened):

Fields explained

- **Program editor tab**
  This is a simple text edit window with 1 level undo and copy/paste functionality. This window must be used to edit the LAC program file.

- **Capture data tab**
  The controls on this tab are used to setup parameters for capture data. The captured results are shown in the X-Y plot.

- **Terminal window**
  This functions like Hyperterm. All responses from the controller are shown in this window. You can also enter commands in this window from the keyboard. To do this first click in the window. You can copy selected text from the edit window into the terminal window by means of the > button. You can paste text from another application by entering CTRL+V

- X-Y Plot

  Plot points can be sent from a running LAC program to this plot.

  To add points to the plot the controller program must output one line for each point in the format !X,Y1,Y2,Y3,Y4 (no spaces allowed) Y2, Y3 and Y4 are optional.

  Examaple:

  MG"!0,100",MG"!50,45",MG"!100,95"

  Will plot 3 points at (0,100) (50,45) and (100,95)

  To plot the point (REG10,REG11) use the code MG"!":10:N,MG",":11

  Other special functions:

  !CL   - Clears the plot and the terminal window (same as !I0)

  !CP   - Clears the plot (Same as !I1)

  !CT   - Clears the terminal window

- State

  Shows the state of the serial port that can be:

  - Connection

  - Connected

  - Not connected

Buttons explained:

- Open program file:

  Open an existing LAC program file. The contents of this file is copied in the Program edit window

- Save program file

  Save the program that is in the Program edit window to a disk file.

- Auto backup

  With this checkbox checked the auto backup function is enabled.

  The auto backup function, when enabled, will save a copy op the program every time that the program (or part of it) is saved in the controller.

  The folder for the backups (Backup\SMAC LAX-X Editor) will be created in the users 'my documents' folder.

  The file name is the date and time of creation of the file with a .txt suffix.

  Note that the backup files are not cleared by the program.

- ?

  Shows a message with information about the auto backup function.

- RUN

  The 3 RUN buttons can be used to start a macro in the controller. A RUN button will start the macro number that is filled in to the right of this button.

- STOP

  Will stop macro execution. Sends an escape character, waits for the prompt and then sends a 0AB,MF command to stop all motors

- Port

  Select the COM port here. The port will be opened automatic after selection.

- Baud rate

  Possible settings: 9600, 19200, 38400 and 57600 Baud.
  This will set the controller and the editor to the requested baud rate.
  Note that baud rates above 19200 will not be saved in the controller.
  Baud rates above 19200 are undocumented features and must be tested before use in any application.
  The advantage of higher baud rates is the increased reporting rate of the controller.
  To prevent buffer overruns in the controller the baud rate is temporary switched to 9600 baud during downloading of macros (or pasting text) in the controller

- Clear

  Clears the terminal window

- Show all

  If this checkbox is checked then all output from the controller will be shown in the terminal window including plot points and special commands.

- Info

  Shows a message about how to plot points in the X-Y plot from a LAC program.

- Clear plot

  Clears the contents of the XY plot and shows the information how to create plot points.

- Export plot

  Exports the plot in excel .CSV format, the separator is a semicolon (;)

- Y1, Y2, Y3, Y4

  Check these to show or hide the corresponding line in the plot

- X Axis and Y Axis min, max and Auto

  Used to set the min and max values for the X and Y axes of the X-Y plot.
  Hit the Auto button to auto scale the axes.

- Fit

  Same as hitting Auto scale on both the X axis and the Y axis.

- >

  Save (part of) a program in the controller. The entire program will be saved or the current selection in the Program edit window. The save process is intelligent (no fixed delays but the software waits for controller response) and is much quicker than the traditional method with Hyperterm and a 200 msec delay per line. Saving will always be done at 9600 Baud regardless of the setting of the Baud rate.

- <
  - Upload program in the controller to the edit window.

Capture data basics.

Capture data needs a user written "Capture macro". This capture macro
will be started after hitting the "Run and capture data" button.
The capture macro includes the CD and DD commands.

Prior to running the capture macro the program will setup the proper capture parameter
and sample rate. The capture macro will be run for each enabled capture variable (max 4).
All data received from the controller after starting the capture macro will be
interpreted as output of the DD command and will be plotted in the chart, this process
ends when the prompt from the controller (the character >) is received.

Prior to running the capture macro the CS command must be given once to define the
size of the capture buffer.

The capture macro requirements:

- Must contain the CD and the DD commands
- Must end after the DD command (the program detects the prompt to end the data capture)
- There may be no other output besides the output of the DD command

Capture data tab controls

- Servo loop rate
  Enter the servo loop rate here.

- Sample interval
  Enter the sample interval here

- Number of axes
  Select the proper number of axes here.
  This is 1 for a LAC-1 controller and 2 for the LAC-25

- Capture macro number.
  This is the macro that will be called on hitting the "Run and capture data" button

- Capture variable name (4 fields)
  Up to 4 variables for capture can be defined here. The capturing for a variable can be
  enabled by placing a checkmark in checkbox next to it.
  Variables are selected by their name (and not the address). The meaning of the names can be
  found in the official LAC documentation.

- Capture data info.
  Clicking this button will show a message that describes how to setup the capture data function.

- Run and capture data
  Click this button to run the capture data macro (defined in the "Capture macro number" field.