

(L^A)T_EX and Reverse-Search

Every so often there is a request for help with configuring SumatraPDF to work this or that **L^Ampport TeX** or **(L^A)T_EX** front-end editor. In essence **one of many** text editors will interface through one of a few Donald Knuth's T_EX typesetting or processing engines that generate pdfL^AT_EX output. On Microsoft Windows, there are two prime distr'o's 1) The Windows version of **TeX Live** and 2) **MiKTeX** (enhanced by proTeXt).

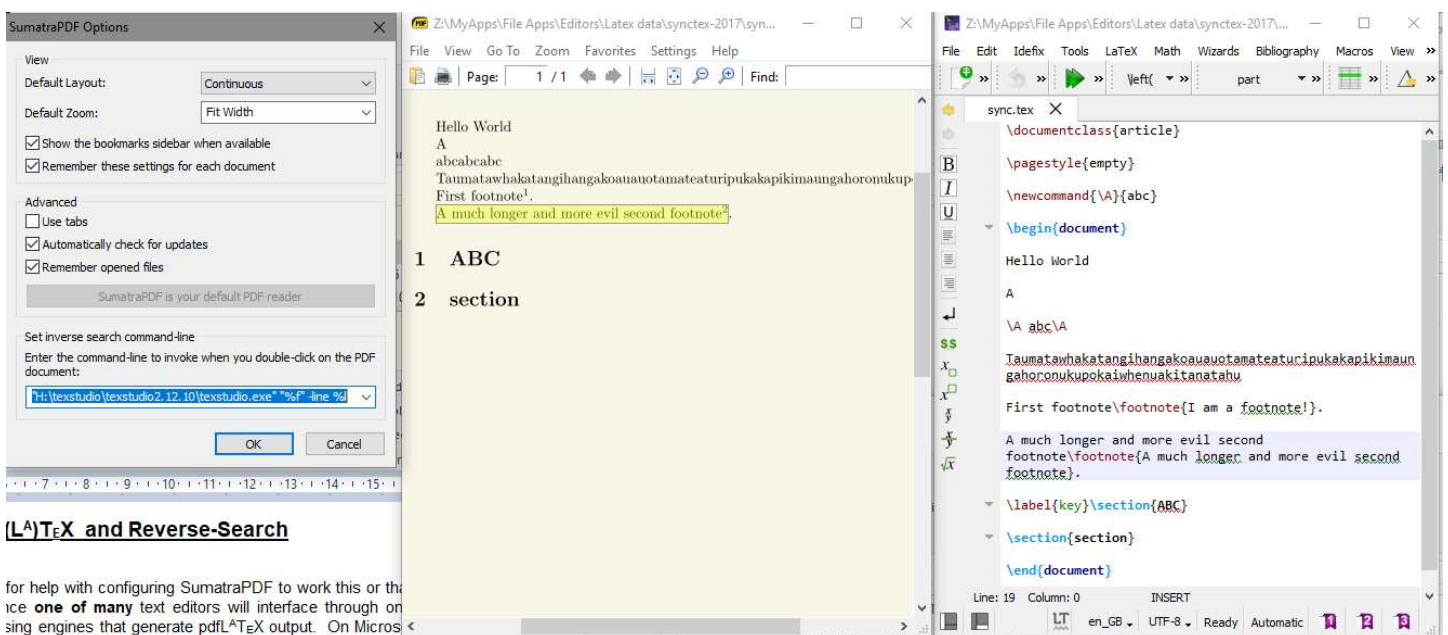
For many reasons SumatraPDF is favoured over some of the built-in internal PDF viewers. The main requirement is a lightweight or portable PDF viewer, that adjusts its display of the edits, with the ability to jump backwards and forwards to the source text. SyncTeX is a utility written by Jérôme Laurens which enables synchronization between a source .TeX document and the resulting .PDF output. This mechanism is generally what allows SumatraPDF to sync with most **(L^A)T_EX** editors, it is used in combination with the way one calls the other to say there is a change. SumatraPDF is not perfect in that its SyncTeX code was not developed far enough (see below) to jump between the same character, column or word, however it is possible to reliably jump between source and .PDF files at block level, which is good enough for most users.

In order for SumatraPDF to know which line to open, it needs to be passed both the filename and the correct line number, also how a highlight is to be displayed and equally when you double click a word in a .PDF it needs to be told how to respond and recall the editor. There are a few ways this can be achieved but the main command passing methods are via **CLI or DDE**. The key component in all this is the .synctex file.

SumatraPDF was in part designed to work with both .pdfsync and .synctex files. For the differences see <http://www.tug.org/TUGboat/tb29-3/tb93laurens.pdf> and <http://william.famille-blum.org/software/sumatra/index.html>. **NOTE:- in the following where .synctex is indicated it can equally be .synctex.gz (a GNU zipped copy)** basically `pdflatex -synctex=-1 book.tex` will produce **book.synctex** whereas `pdflatex -synctex=1 book.tex` will generate **book.synctex.gz**. Thus **-1=do not zip, 0=none 1=zip**. SumatraPDF will work with either 1 or -1.

By now you may understand that with dozens of T_EX editors multiplied by a few engines, times multiple TeXniques there are hundreds of combinations waiting to be misconfigured or fail on any one small difference. As SumatraPDF is given the responsibility to reverse (a.k.a. inverse-search) the call, **MyNotes will concentrate on that aspect**. Forward-search along with responsibility of handing over the reverse search parameters is mainly down to the T_EX editor, so it is best to raise any of those issues with the editor support / user forum. Some common issues on a per editor basis will be shown in other notes.

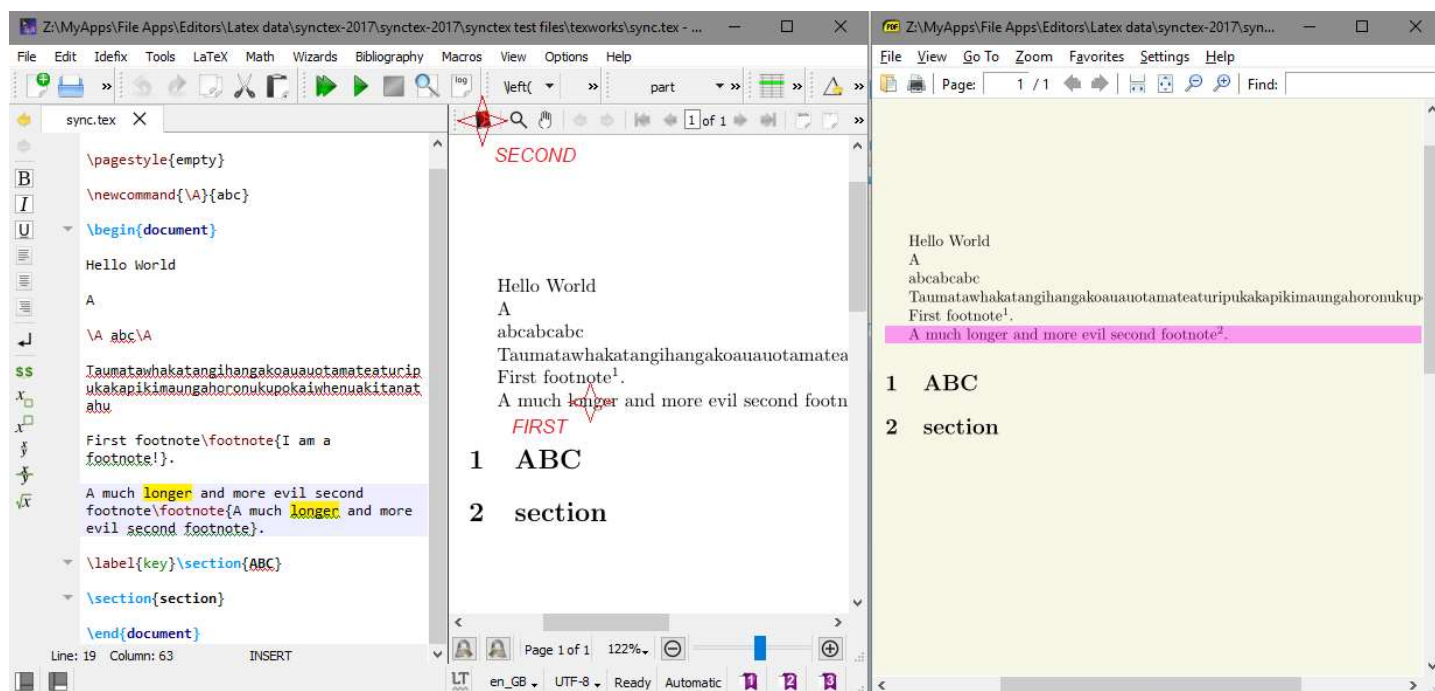
In this screenshot SumatraPDF has been configured so that on opening a PDF a double-click will fire up the Latex editor and highlight the correct line, this is in effect a **forward search from SumatraPDF** however since it is more common to start an editing session in the editor that **jumps FORWARD to SumatraPDF** this **reverse search is called an "Inverse Search"**



(L^A)T_EX and Reverse-Search

for help with configuring SumatraPDF to work this or the
ice **one of many** text editors will interface through on
sing engines that generate pdfL^AT_EX output. On Micros

This editor has its own PDF viewer that is actually very good at syncing. In this second screen shot the editor has opened its own PDF preview and if we **FIRST** select a word in that it will highlight both words in the original, however for checking the output in other viewers it has the **SECOND** option to show in an external PDF viewer, with SumatraPDFs ability to auto refresh the open file, it can highlight the **FORWARD SEARCH**.



All the above was done without a T_EX engine loaded, for this two way communication its role is to constantly recompile an output PDF rebuilding the .pdfsync or .synctex file to keep editor and viewer(s) in synchronisation.

There are many other external influences that can have a bearing on the two way communication between editor and viewer, so first consider if one of these matches your experience. DDE is depreciating in usage and most calls can be composed by Command Line Instructions. Thus CLI methods are more common than DDE. Many commands require specific combinations of % or " characters some may differ between ' and ", be wary.

One point to consider is the the language of the OS you're using. There may be different names in links in German OS C:\Programme\... vs C:\Program Files\... are mapped to the same directory automatically. HOWEVER these are two different directories for DDE usage, so the forward search to the PDF may work as intended, but the inverse search can fire up a new instance of the editor leading to a file in use clash.

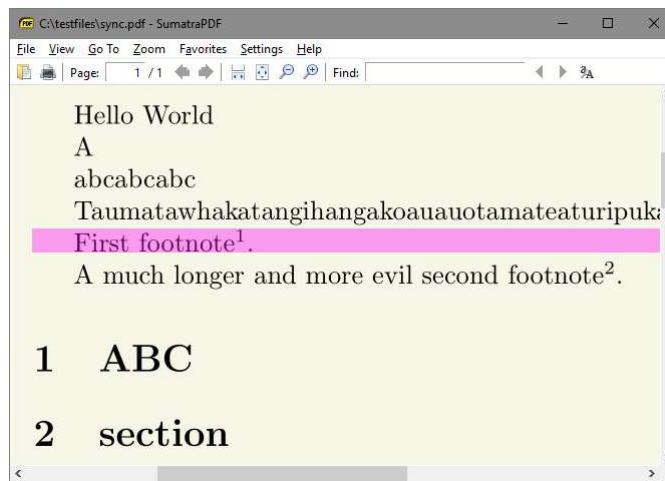
Equally .synctex can cause problems with some characters. If a project is located in a folder whose name contains an accented character (e.g é), forward and inverse search may not work (a space may be ok). If you are européenne or even europeană, this can happen on a regular basis. You may see the project, .tex and .pdf files in the project explorer and can open both and compiling a .tex file may update .pdf, BUT no →←

Mixing a Linux ELF editor (running in Windows 10 WSL) with SumatraPDF running in native windows mode may cause problems with the naming of the volumes where the files are to be found. On a fully updated Windows 10 machine with google drive file stream, even the latest version of SumatraPDF may not detect documents modified on the google drive and not reload them automatically, if so, use [R]eload key. See <https://forum.sumatrapdfreader.org/t/google-drive-file-stream-breaks-reloadmodifieddocuments/1481>.

Editing files on a remote non NTFS drive system, can also causes problems. Avoid ex-FAT, cloud drives or other non conventional windows locations, If it works consider it a bonus, just don't complain if it doesn't.

How to test (if you are reading this file in SumatraPDF just click the links to download and save into a folder. In a browser or other viewer you may need to cut and paste this link to get a set of relative path samples. As outlined above there is little point in using system path specific .synctex files so download and extract/unzip

<https://github.com/GitHubRulesOK/MyNotes/raw/master/AppNotes/SumatraPDF/LATeX%20and%20Reverse-Search.zip>

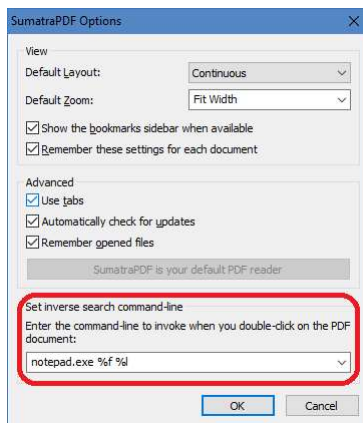


sync.pdf Sample file downloaded and forward search with highlight opened in SumatraPDF

Most users will be able to fire up SumatraPDF or their own PDF viewer, if not check with the viewer apps forum, however its not so easy to see why the reverse/inverse link is not behaving. **First simple checks are:-**

In the following replace my pathnames with yours, but if possible use path names to not have spaces.

If SumatraPDF is open (even if the PDF target file is not) go to File > Settings > Options... Do you see a section at the bottom headed "Set inverse search command-line" ?



IF IT'S NOT THERE <https://forum.sumatrapdfreader.org/t/no-option-for-setting-the-inverse-search/494> and you wish to see it, cancel and go to File > Settings > Advanced Options...

in the SumatraPDF-settings.txt file search for EnableTeXEnhancements = false , now change that (with a space to = true and select File > Save or press [Ctrl] and [S]).

This is NOT essential since SumatraPDF will fire the command irrespective of whether it is shown or not, the key issue is whether there is an entry in the SumatraPDF-settings.txt such as **InverseSearchCmdLine = blah...blah... "%f" %l (that is a lower case L)** then for the next run EnableTeXEnhancements is usually set = true , however if not set you may wish to force it true as above.

So that you understand how it works and thus may go wrong, go back to File > Settings > Options... and **if there is an entry right click and select copy** using any of your preferred methods **save this to another file**. In windows 10 to start notepad it is as simple as typing into the Cortana search box as many letters of n o t e until you see notepad.exe on the list and then hitting the [enter] key, since we are going to overwrite your entry in the Options box saving this **allows you to replace it later**.

Now *Set inverse search command-line* exactly to **notepad %f %l**

The l is a lower-case L there is a space in front of each % and to start with no double quotes anywhere

To ensure it has stuck hit ok and close SumatraPDF then again, so we see how it works, copy **both** the .pdf and .gz to a **new name** such as **sync2.pdf** and **sync2.synctex.gz** in the same folder, **do not rename the .tex file. now use SumatraPDF to open the sync2.pdf**. Again select File > Settings > Advanced Options... to open SumatraPDF-settings.txt and you should find **InverseSearchCmdLine = notepad %f %l** with or **without** a \$ sign, if there is a \$ sign you added a space or other characters after the lower-case L so remove anything after l and resave the file. Close the settings file and double-click the **Hello World** line of **sync2.pdf**. **Notepad should have error messaged** along the lines of **Cannot find the C:\somewhere\sync.tex 10 file**. If the number is not 9, 10 or 11 then you did not click near the first line or you do not have the correct sync2.synctex file alongside sync2.pdf, so review steps above or get someone to double-check your actions.

What has happened is that on double-clicking the paragraph, SumatraPDF looked for a .synctex file alongside the pdf and extracted the source file name and line number, then gave the system the command *notepad & the path to all 3 files (C:\somewhere\)* then it extracted source file name (sync.tex) and line number however windows generally applies this as if it is c:\windows\notepad.exe "C:\somewhere\sync.tex 10" **not what we want**, so to force the correct action lets add double quotes " to make it **notepad "%f" %l** and try again, **this time notepad should open the sync.tex file**, note that to notepad it is just one big block of text

and notepad ignores line10 command as it does not support instructions to go to a given location.

Now replace the notepad part of the command with your own editor that you saved from before, so it may now look like "H:\texstudio2.12.6\texstudio.exe" "%f" %l , note this **will NOT work** since TeXstudio expects the %l to be prefixed with -line thus to work it needs "H:\texstudio2.12.6\texstudio.exe" "%f" -line %l

As you click on each PDF paragraph the editor should jump from phrase to phrase without opening a second session. Each editor will have its own requirements so read and understand the documentation for your **L^AT_EX** editor to compare against the instructions above. In this simple case if the editor throws an error or a second session starts you have not set the command line correctly. you may also be surprised to find clicking at the **top of page 1** in the .pdf may jump you to a **\newpage** between page 1 and 2 (i.e. **top of page 2**) odd, no!

SumatraPDF converted the source name from a relative to absolute address for the editor however some editors allow that default behaviour to be changed, this can lead to issues that may need to be addressed.

IF we move the .pdf and .synctex to a different folder away from the .tex source then SumatraPDF can NOT pass a valid translated .tex location to the editor. So if we don't start the editor but double-click the pdf the editor may fire a (second?) blank screen. HOWEVER if the editor is started first with the remote .tex open it should translate the incoming command to jump to the correct line. This can confuse various editor users that save the .tex and .pdf to different folders. Hence the suggestion **whilst working to keep them in one folder**.

If you have a permanent installation of SumatraPDF you will only want to set inverse-search ONCE
The **InverseSearchCmdLine** = is permanently stored in SumatraPDF-settings.txt. It **does not have to be configured in the editor** unless you have to re-install SumatraPDF or otherwise replace settings.txt (*backup!*)

Many portable user want a way to amend the runtime path of the editor for changing locations so for portable use we may need to keep **switching the drive: and \editor path** if this is done with a **BATch.CMD** then remember each %f needs to be %%f and %l needs to be %%l This is one of the uses for the **CLI command** so when setting up a startup.cmd in the portable **SumatraPDF folder** simply add for the examples below a batch line such as : - *(for drag and drop you can add an extra %1 e.g. ends %%l" %1)*
"%~dp0SumatraPDF.exe" -inverse-search "%~d\apps\tex editor\texstudio.exe" "%%f" -line %%l" (*check your "*

For examples below **\editor** needs be defined like c:\program files (x86)\application\ or R:\my apps\tex editor\

To avoid including constant forward search values such as -Reuse-Instance or - fwdsearch-permanent 1 (HighlightColor = #FF80FF and HighlightPermanent = true) set them in SumatraPDF-settings.txt <https://www.sumatrapdfreader.org/settings.html> along with the following InverseSearchCmdLine

AUCTeX/Emacs forward search see <https://www.emacswiki.org/emacs/AUCTeX#toc26>

InverseSearchCmdLine = "**\editor**emacsclientw.exe" -n +%l "%f" [may also require -a emacs]

see <https://forum.sumatrapdfreader.org/t/is-dp-supported-in-set-inverse-search-command-line/294>

Microsoft VS Code = "**\editor**Code.exe" -g %f:%l [you may need to try "%f:%l" or other escape chars]

notepad++Scintilla = "**\editor**notepad++.exe" -n%l "%f"

SciTE = "**\editor**scite.exe" "-open:%f" -goto:%l or "-loadsession:%f" -goto:%l

Sublime similar to Microsoft VS Code but try without -g = "**\editor**sublime_text.exe" "%f:%l".

TeXlipse (a plugin that adds Latex support to the Eclipse Java IDE) it should look something like

= "**\editor**javaw.exe" -classpath "**\editor**eclipse\plugins\net.sourceforge.texlipse_1.5.0\texlipse.jar"
net.sourceforge.texlipse.viewer.util.FileLocationClient -p 55000 -f "%f" -l %l

Also in eclipse uncheck / toggle off Force eclipse to get focus on inverse search. Do NOT open the PDF from the file system or SumatraPDF, not using the Preview Document menu item in Eclipse will not open the port.

Texmaker = "**\editor**texmaker.exe" "%f" -line %l or = "**\editor**texmaker.exe" "%%f" -line %%l"

TeXnicCenter /I %I "%f" will start multiple instances thus in order to only have a one -inverse call you need to use DDE so start SumatraPDF and SET = "**editor**\TeXnicCenter.EXE" /nosplash /ddecmd "[goto('%f','%I')]"

1. Open the Output profiles window (Alt+F7) Select the Latex => PDF output profile.
2. In the Latex section, add -synctex=-1 at the end of Command line arguments to pass to the compiler textbox (leave a space between this and the previous arguments).
3. In the Viewer section, set the Path of executable textbox to C:\Program path\SumatraPDF.exe
4. Still in the Viewer section, set for View project's output and Forward search the following options: Enable DDE Command and set Command to [ForwardSearch("%bm.pdf","%Wc",%I,0)], Server to SUMATRA, and Topic to Control. This will allow forward search to work.

TeXstudio = "**editor**\texstudio.exe" "%f" -line %I

If you use DVI > PS > PDF chain you should also add -synctex=1 option to the LaTeX part as seen in PdfLaTeX option, so as to create a search link between your .TeX source code and companion .PDF file.

For forward search modify Configure > Commands > External PDF Viewer to

"path\to\SumatraPDF.exe" -forward-search "?am.tex" @ "?am.pdf"

and under > Build > PDF Viewer > pull down to select **txs:///view-pdf-external**

Alternative method <https://www.alperiyazar.com/blog/2014/09/create-search-link-between-texstudio-sumatra/>

TeXworks (included in both TeX Live and MiKTeX 40.5 MB additional otherwise)

for TeXworks it can be more difficult to find a good re-configuration guide however at one time I thought that IF MiKTeX installer finds SumatraPDF already installed it is supposed to do the necessary re-configuration for you ! I can no longer find a link ? currently unclear how to invoke reliably from command line so temporarily install full sumatraPDF and try <https://miktex.org/howto/portable-edition> to let SumatraPDF be sole reader see

<https://tex.stackexchange.com/questions/44405/suppress-texworks-pdf-preview>

untested

= "**editor**\emacs.exe" -G%I "%f"

= "**editor**\geany.exe -I %I %f &"

= "**editor**\gnuclientw" -q +%I "%f"

= "**editor**\gvim --servername somepdf --remote-silent '+%I<Enter>' %f"

<https://tex.stackexchange.com/questions/45369/how-to-setup-vim-latex-to-run-only-1-instance-of-sumatrapdf?noredirect=1&lq=1>

= "**editor**\kate --use --line %I"

= "**editor**\kile --line %I %f"

= "**editor**\LEd.exe" %f:%I

MiKTeX users update to the latest version before installing LyX 2.3.0 for windows similar to Microsoft VS Code but without colon: = "**editor**\lyxclient.exe -g %f %I"

= "**editor**\Pfdit\PFE32.exe" /g %I "%f"

= "**editor**\texshell.exe" /I=%I "%f"

WinEdt = "**editor**\winedt.exe" "[Open(|%f|);SelLine(%I,8)]" on miktex pdf viewer set synctex options

<https://tex.stackexchange.com/questions/85060/pdf-viewer-with-auto-update-for-winedt/85117>

some use SelPar some use ' in place of | still need to test each option with SumatraPDF

= "**editor**\winshell.exe" -c "%f" -I %I