

inputtrc.sty

Tracing Which File Loads Which

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Abstract

inputtrc.sty produces screen/log messages ‘ $\langle current \rangle$ INPUTTING $\langle next \rangle$ ’ on L^AT_EX input commands, $\langle current \rangle$ and $\langle next \rangle$ being file names. The message indents reflect the input nesting level. This can be turned on and off, and the “indent unit” can be chosen. The implementation somewhat resembles packages fink and inputfile.

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*<http://contact-ednotes.sty.de.vu>

1 Features and Usage

The file `inputtrc.sty` is provided ready, installation only requires putting it somewhere where \TeX finds it (which may need updating the filename data base).¹

After `\documentclass`, you load `inputtrc` (as usually) by

```
\usepackage{inputtrc}
```

However, you may want to see what `\documentclass` loads; then precede `\documentclass` with

```
\RequirePackage{inputtrc}\dotracinginputs
```

Indeed, the feature messages appear after the command `\dotracinginputs` only. The command `\notracinginputs` turns the feature off again.

`\setinputindentunit{<cmds>}` globally sets the “indent unit,” whose default is set by

```
\setinputindentunit{\space\space}
```

in `inputtrc.sty`. By default, the indent for what the main file (to whose name `\jobname` expands—TODO: extension is not yet dealt with) loads is two spaces; each nesting level increases the indent by two more spaces, and the indent is reduced again when a loaded file is left. (TODO: not dealt with `\dotracinginputs` in other files yet, may need fink.) The first indent and the indent difference will be, e.g., *three* spaces if you insert

```
\setinputindentunit{\space\space\space}
```

Note that only \LaTeX input commands are recognized by `inputtrc.sty` (at present, TODO). This means that `\input` *without braces* is not recognized: it neither produces a message nor changes the indent, and with

```
\input_<file>
```

where `<file>` loads other files, files that `<file>` loads directly produce *wrong* messages.

2 What it is Good for

\TeX ’s primitive `\input` (that \LaTeX represents as `\@@input`) sends a left round bracket to screen, followed by the path of the loaded file. When \TeX stops reading the file, a right round bracket is sent to screen. This screen log suffices to trace which files load which other files (directly). However, this has a quite little visual effect and hardly reflects input nesting in an intuitive way. And when an inputted file produces many messages, it becomes quite impossible to trace input nesting by eyes and mind only.

This may be very painful in debugging. Sometimes you get a warning or error message and you are unable to tell which file produced the message (if the file is not a \LaTeX package issuing the proper *package* warnings and errors)²—

¹<http://www.tex.ac.uk/cgi-bin/texfaq2html?label=inst-wlcf>

²`\PackageWarning` etc.

typically the *number of the line* that caused the warning is shown, but not the *file name*.

Indeed on the texhax mailing list, *Karl Berry* posted the following:³

Sometimes it would be helpful for tex debugging to get a “backtrace” of the files that tex is executing. It could be something static, that reads a .log file (or maybe .fls file from -recorder) and reports on which files were opened and closed in some way that is readable for deep nesting.

I seem to recall that auctex and presumably front ends have dealt with extracting the filenames, at least, out of the mess of garbage printed to the terminal on a typical run, parsing all the open/close parens, but I’ve been unable to find anything that works as a separate utility.

Does anyone know of something to do this?

Failing anything else, I wonder about adding a new primitive to pdf-tex to dump the input stack at any point. Then we could get line numbers too, I expect.

The subject line was “*tex filename backtrace utility*”.—*Ronald Fehd* joined:⁴

I am glad to see this suggestion as I have occasional problems identifying from which of my included files the error message is coming from.

and suggested using the programming language SAS.

Karl’s suggestion to filter the .log file would have the advantage over the present approach that information not relevant for input tracing would be stripped off. However, more in the direction addressed by Ronald Fehd, any message from a file may be wanted to be attributed to that file. The present approach should be helpful then, you just must read the log back to the last line containing INPUTTING.

The present approach was inspired by Karl’s idea to provide a new T_EX primitive. This first triggered my reply⁵ claiming one could just redefine the primitive `\input` as a macro—a little too optimistic. In the documentation for his FiNK package,⁶ Didier Verna remarks that this primitive parses the file name in a way that is somewhat difficult to imitate by macros:

(one would have to parse the characters one by one, and I’m not ready to do so...)

Instead, I here change two L^AT_EX macros that use the primitive.

³<http://tug.org/mailman/htdig/texhax/2010-February/014305.html>

⁴<http://tug.org/mailman/htdig/texhax/2010-February/014311.html>

⁵<http://tug.org/mailman/htdig/texhax/2010-February/014309.html>

⁶<http://ctan.org/pkg/fink>

3 Example

It is especially nice to watch `hyperref` loading quite a bunch from Heiko's oberdiek bundle:⁷

```

hyperref.sty INPUTTING ltxcmds.sty
(/usr/share/texmf/tex/latex/oberdiek/ltxcmds.sty
Package: ltxcmds 2010/04/26 v1.7 LaTeX kernel commands for general use (HO)
)

hyperref.sty INPUTTING keyval.sty
(/usr/share/texmf/tex/latex/graphics/keyval.sty
Package: keyval 1999/03/16 v1.13 key=value parser (DPC)
\KV@toks@=\toks14
)

hyperref.sty INPUTTING kvsetkeys.sty
(/usr/share/texmf/tex/generic/oberdiek/kvsetkeys.sty
Package: kvsetkeys 2007/09/29 v1.3 Key value parser with default handler support (HO)
)

kvsetkeys.sty INPUTTING infwarerr.sty
(/usr/share/texmf/tex/generic/oberdiek/infwarerr.sty
Package: infwarerr 2007/09/09 v1.2 Providing info/warning/message (HO)
)

kvsetkeys.sty INPUTTING etexcmds.sty
(/usr/share/texmf/tex/generic/oberdiek/etexcmds.sty
Package: etexcmds 2007/12/12 v1.2 Prefix for e-TeX command names (HO)
Package etexcmds Info: Could not find \expanded.
(etexcmds)          That can mean that you are not using pdfTeX 1.50 or
(etexcmds)          that some package has redefined \expanded.
(etexcmds)          In the latter case, load this package earlier.
))

hyperref.sty INPUTTING pdfescape.sty
(/usr/share/texmf/tex/generic/oberdiek/pdfescape.sty
Package: pdfescape 2007/11/11 v1.8 Provides hex, PDF name and string conversions (HO)
)

pdfescape.sty INPUTTING pdftexcmds.sty
(/usr/share/texmf/tex/generic/oberdiek/pdftexcmds.sty
Package: pdftexcmds 2009/04/10 v0.4 LuaTeX support for pdfTeX utility functions (HO)
)

pdftexcmds.sty INPUTTING ifluatex.sty
(/usr/share/texmf/tex/generic/oberdiek/ifluatex.sty
Package: ifluatex 2009/04/10 v1.1 Provides the ifluatex switch (HO)
Package ifluatex Info: LuaTeX not detected.

```

⁷<http://ctan.org/pkg/oberdiek>

```

)
Package pdftexcmds Info: LuaTeX not detected on input line 145.
))
    hyperref.sty INPUTTING ifvtex.sty
(/usr/share/texmf/tex/generic/oberdiek/ifvtex.sty
Package: ifvtex 2008/11/04 v1.4 Switches for detecting VTeX and its modes (H0)
Package ifvtex Info: VTeX not detected.
)
    hyperref.sty INPUTTING ifxetex.sty
(/usr/share/texmf/tex/generic/ifxetex/ifxetex.sty
Package: ifxetex 2010/09/12 v0.6 Provides ifxetex conditional
)
    hyperref.sty INPUTTING hycolor.sty
(/usr/share/texmf/tex/latex/oberdiek/hycolor.sty
Package: hycolor 2008/09/08 v1.4 Code for color options of hyperref/bookmark (H
0)

    hycolor.sty INPUTTING xcolor-patch.sty
(/usr/share/texmf/tex/latex/oberdiek/xcolor-patch.sty
Package: xcolor-patch 2008/09/08 xcolor patch
))
    hyperref.sty INPUTTING letltxmacro.sty
(/usr/share/texmf/tex/latex/oberdiek/letltxmacro.sty
Package: letltxmacro 2008/06/24 v1.3 Let assignment for LaTeX macros (H0)
)
\@linkdim=\dimen103
\Hy@linkcounter=\count88
\Hy@pagecounter=\count89

    hyperref.sty INPUTTING pdlenc.def
(/usr/share/texmf/tex/latex/hyperref/pdlenc.def
File: pdlenc.def 2010/06/18 v6.81g Hyperref: PDFDocEncoding definition (H0)
)
    hyperref.sty INPUTTING intcalc.sty
(/usr/share/texmf/tex/generic/oberdiek/intcalc.sty
Package: intcalc 2007/09/27 v1.1 Expandable integer calculations (H0)
)
    hyperref.sty INPUTTING hyperref.cfg
(/usr/share/texmf/tex/latex/config/hyperref.cfg
File: hyperref.cfg 2002/06/06 v1.2 hyperref configuration of TeXLive
)
    hyperref.sty INPUTTING kvoptions.sty
(/usr/share/texmf/tex/latex/oberdiek/kvoptions.sty
Package: kvoptions 2010/02/22 v3.7 Keyval support for LaTeX options (H0)
)
Package hyperref Info: Option 'bookmarksnumbered' set 'true' on input line 3577

```

```

.
Package hyperref Info: Hyper figures OFF on input line 3658.
Package hyperref Info: Link nesting OFF on input line 3663.
Package hyperref Info: Hyper index ON on input line 3666.
Package hyperref Info: Plain pages OFF on input line 3673.
Package hyperref Info: Backreferencing OFF on input line 3678.

Implicit mode ON; LaTeX internals redefined
Package hyperref Info: Bookmarks ON on input line 3874.
    hyperref.sty INPUTTING url.sty
(/usr/share/texmf/tex/latex/ltxmisc/url.sty
\Ulmuskip=\muskip10
Package: url 2005/06/27 ver 3.2 Verb mode for urls, etc.
)
LaTeX Info: Redefining \url on input line 4159.

    hyperref.sty INPUTTING bitset.sty
(/usr/share/texmf/tex/generic/oberdiek/bitset.sty
Package: bitset 2007/09/28 v1.0 Data type bit set (H0)

    bitset.sty INPUTTING bigintcalc.sty
(/usr/share/texmf/tex/generic/oberdiek/bigintcalc.sty
Package: bigintcalc 2007/11/11 v1.1 Expandable big integer calculations (H0)
))
\Fld@menulength=\count90
\Fld@Width=\dimen104
\Fld@charsize=\dimen105
\Fld@toks=\toks15
Package hyperref Info: Hyper figures OFF on input line 5137.
Package hyperref Info: Link nesting OFF on input line 5142.
Package hyperref Info: Hyper index ON on input line 5145.
Package hyperref Info: backreferencing OFF on input line 5152.
Package hyperref Info: Link coloring OFF on input line 5157.
Package hyperref Info: Link coloring with OCG OFF on input line 5162.
Package hyperref Info: PDF/A mode OFF on input line 5167.
LaTeX Info: Redefining \ref on input line 5207.
LaTeX Info: Redefining \pageref on input line 5211.

    hyperref.sty INPUTTING atbegshi.sty
(/usr/share/texmf/tex/generic/oberdiek/atbegshi.sty
Package: atbegshi 2008/07/31 v1.9 At begin shipout hook (H0)
)
\Hy@abspage=\count91
\c@Item=\count92
\c@Hfootnote=\count93
)

```

```
* hyperref using default driver hpdfTEX *
  makedoc.cfg INPUTTING hpdfTEX.def
(/usr/share/texmf/tex/latex/hyperref/hpdfTEX.def
File: hpdfTEX.def 2010/06/18 v6.81g Hyperref driver for pdfTeX

  hpdfTEX.def INPUTTING atveryend.sty
(/usr/share/texmf/tex/latex/oberdiek/atveryend.sty
Package: atveryend 2010/03/24 v1.5 Hooks at very end of document (H0)
Package atveryend Info: \enddocument detected (standard).
)
\Fld@listcount=\count94
\c@bookmark@seq@number=\count95

  hpdfTEX.def INPUTTING rerunfilecheck.sty
(/usr/share/texmf/tex/latex/oberdiek/rerunfilecheck.sty
Package: rerunfilecheck 2010/03/16 v1.6 Rerun checks for auxiliary files (H0)

  rerunfilecheck.sty INPUTTING uniquecounter.sty
(/usr/share/texmf/tex/latex/oberdiek/uniquecounter.sty
Package: uniquecounter 2009/12/18 v1.1 Provides unlimited unique counter (H0)
)
Package uniquecounter Info: New unique counter 'rerunfilecheck' on input line 2
71.
)
\Hy@SectionHShift=\skip43
)
```

4 Implementation

4.1 Package File Header (Legalize)

```

1  \NeedsTeXFormat{LaTeX2e}[1994/12/01]
2  \ProvidesPackage{inputtrc}[2010/10/08 v0.1a input tracing (UL)]
3
4  %% Copyright (C) 2010 Uwe Lueck,
5  %% http://www.contact-ednotes.sty.de.vu
6  %% -- author-maintained in the sense of LPPL below --
7  %%
8  %% This file can be redistributed and/or modified under
9  %% the terms of the LaTeX Project Public License; either
10 %% version 1.3a of the License, or any later version.
11 %% The latest version of this license is in
12 %%   http://www.latex-project.org/lppl.txt
13 %% We did our best to help you, but there is NO WARRANTY.
14 %%
15 %% Please report bugs, problems, and suggestions via
16 %%
17 %%   http://www.contact-ednotes.sty.de.vu

```

4.2 Core Definitions

Initializations of indent, current filename, and filename stack:

```

18  \gdef\IT@indent{\IT@indent@unit}
19  \xdef\IT@currfile{\jobname\space}
... TODO: add .tex unless ...
20  \xdef\IT@filestack{\relax}
... \relax saves braces around job file name when the file stack is unbuilt.
   \IT@prim@input{<file>} will replace LATEX's \@@input (at certain places,
   see below).
21  \newcommand*{\IT@prim@input}[1]{%
22    \typeout{\IT@indent\IT@currfile INPUTTING #1}%
... TODO: option to write to .log only.
23    \xdef\IT@filestack{{\IT@currfile}\IT@filestack}%
24    \xdef\IT@currfile{#1}%
25    \expandafter \gdef\expandafter \IT@indent\expandafter{%
26      \IT@indent \IT@indent@unit}
27    \@@input#1
28    \expandafter\IT@pop@indent\IT@indent \@nil
29    \expandafter\IT@pop@file \IT@filestack\@nil
30  }
31  \def\IT@pop@indent#1#2\@nil{\gdef\IT@indent{#2}}
32  \def\IT@pop@file #1#2\@nil{%
33    \gdef\IT@currfile{#1}\gdef\IT@filestack{#2}}
... cf. LaTeX's \@pushfilename/\@popfilename.

```


4.3 Changing L^AT_EX (Preparations)

Changing L^AT_EX’s \@@input (that stores T_EX’s primitive \input) is not easy (cf. Didier Verna on his fink package,⁸ also inputfile); but it should suffice to change two of the three L^AT_EX commands that use \@@input:

```
34 \newcommand\IT@InputIfFileExists[2]{%
35   \IfFileExists{#1}%
36     {#2\@addtofilelist{#1}\IT@prim@input\@filef@und}}
```

... L^AT_EX’s version is \long, as opposed to \@input:

```
37 \newcommand*{\IT@input}[1]{%
38   \IfFileExists{#1}{\IT@prim@input\@filef@und}%
39     {\typeout{No file #1.}}}
```

... the third macro using \@@input is \input—too difficult for now.
Storing original L^AT_EX:

```
40 \let\IT@ltx@InputIfFileExists\InputIfFileExists
41 \let\IT@ltx@input\@input
```

4.4 The User Commands

`\dotracinginputs` globally activates input tracing:

```
42 \newcommand*{\dotracinginputs}{%
43   \global \let \InputIfFileExists \IT@InputIfFileExists
44   \global \let \@input \IT@input}
```

`\notracinginputs` globally turns input tracing off:

```
45 \newcommand*{\notracinginputs}{%
46   \global \let \InputIfFileExists \IT@ltx@InputIfFileExists
47   \global \let \@input \IT@ltx@input}
```

`\setinputindentunit{<cmds>}` globally sets the “indent unit”—the default setting is `<cmds> = \space\space`.

```
48 \newcommand*{\setinputindentunit}{\gdef\IT@indent@unit}
49 \setinputindentunit{\space\space}
50 \endinput
```

5 Coda

You can’t overestimate my pride! *That’s one small step for a man—one giant leap for T_EXkind.*

On the other hand, I probably exhausted the set of possible trials and errors (becoming euphoric when it suddenly worked).

Dedicated to Koppa Aleph Rio Lord.

Worms-Pfeddersheim 2010/10/08, U. L.

⁸<http://ctan.org/pkg/fink>

51 HISTORY

52

53 v0.1 2010/10/08 very first, sent to CTAN same day

54 v0.1a 2010/10/08 doc corrected: LaTeX commands using \@@input;
55 manual page breaks

56