Converting LaTeX using lwarp

LaTeX to HTML

To convert from LaTeX to `.html`, you can use pandoc. But, if your document is complex, then you'll need something more custom:

1. **TeX4HT**
2. **HeVeA**
3. **hyperlatex**
4. **latex2html**
5. **WebQuiz** - for converting LaTeX quizzes to HTML.
6. **ltoh**
7. **tth**
8. **make4ht**. TeX to XML.

Recommendation: Lwarp

The one I recommend is **lwarp**. I recommend it for several reasons:

    1. The documentation is extensive (1412 pages).
    2. There is a tutorial.
    3. It works.
    4. The creator responds to questions: **Github repo for lwarp**

Using Lwarp

To illustrate how it is used, you'll need to modify any LaTeX file you have.

1. create a copy of your `.tex` and place it in a different folder. We are doing this because `lwarp` will create several new files.
2. Next, we need to reorganize our `.tex` file by moving the `iftex` package to the top, followed by packages that deal with font selection and encoding (what we use will depend upon which engine we are using).

Setting up fonts and encoding

```latex
\usepackage{iftex}
% --- LOAD FONT SELECTION AND ENCODING BEFORE LOADING LWARP ---
\ifPDFTeX
\usepackage{lmodern}              % pdflatex or dvi latex
\usepackage[T1]{fontenc}
\usepackage[utf8]{inputenc}
\else
\usepackage{fontspec}             % XeLaTeX or LuaLaTeX
\fi
```

Adding more writes

If your project is large, add the following (lwarp may be writing to many files, so this increases the number of file write operations):

```
\usepackage{morewrites}
\morewritessetup{allocate=10}
```

Setting lwarp options

Now, let's load `lwarp` and set several options:

```latex
% --- LWARP IS LOADED NEXT ---
\usepackage[
ImagesDirectory=imgs, % directory of the images
%   OSWindows,                   % Force Windows. (Usually automatic.)
ImagesName={lateximg-}, % we'll prefix any images with this
mathjax, % Use MathJax to display math.
]{lwarp}
% \boolfalse{FileSectionNames}  % If false, numbers the files.
```

Adding packages

Next, we will add additional packages:

Customizing the HTML output

Finally, we customize the HTML output:

```
% --- LATEX AND HTML CUSTOMIZATION ---
\title{Symbolic Logic: An Introduction}
\author{David W. Agler}
\setcounter{tocdepth}{1} % Include subsections in the \TOC.
\setcounter{secnumdepth}{3} % Number down to subsections.
\setcounter{FileDepth}{1} % Split \HTML\ files at sections, 0 at chapters,
\boolfalse{CombineHigherDepths} % Combine parts/chapters/sections
\HTMLAuthor{David W. Agler} % Sets the HTML meta author tag.
\HTMLLanguage{en-US} % Sets the HTML meta language.
\HTMLDescription{This is a logic textbook written by David W. Agler.}% Sets the HTML meta
description.
\HTMLPageBottom{Copyright $\copyright$ 2025 \href{https://davidagler.com}{David W. Agler}
| \LinkPrevious\ | \LinkNext}
```

```
%\CSSFilename{css/custom_overrides.css} % custom CSS
%\MathJaxFilename{js/lwarp_math_custom.txt} % Custom math or javascript
```

Building the project: LaTeX

Next, build the LaTeX project using either `pdflatex`, `xelatex` or `lualaTeX`. This will create several files.

Building the project: HTML

Next, create the html file with the following command `lwarpmk html` and several html files will be created.

Building the project: Images

Finally, run `lwarpmk limages` . This will create any images created by LaTeX drawing packages (e.g., tikz, tcolorbox).

1. If you run into issues, try fixing your LaTeX
2. Run `lwarpmk cleanall` or `lwarpmk clean`

Cleanup

There are three issues to take care of:
1. Our custom macro that contains math is not being recognized by mathjax
2. Our tikzpicture of a circle does not have any alt-text.
3. Heading structure is not `<h1>` , `<h2>` , etc.

Cleanup: Macros and Mathjax

- Our custom macro `\mygreatcommand` works but it is not working with Mathjax. To fix this, we need to not only define the command, but also surround it in the following `\CustomizeMathJax{\newcommand{your_macro}}`. Put this in the preamble.
- Also, we'll remove math in the macro itself and set the environment to math in the text (although see the **lwarp manual 8.7** for other workarounds).

From this:

```latex
\newcommand{\mygreatcommand}{$\vdash (\exists x)(Px\rightarrow (\forall y)Zy)$}
```

to this:

```latex
\newcommand\mygreatcommand{
\vdash (\exists x)(Px\rightarrow (\forall y)Zy)
}%
% second block for mathjax and lwarp
\begin{warpMathJax}
\CustomizeMathJax{\newcommand\mygreatcommand{\vdash (\exists x)(Px\rightarrow (\forall y)Zy)}}%
\end{warpMathJax}
```

Cleanup: Alt Text

Next, we need to replace the alt tag of our tikz circle. Right now it looks like this:

```
<img src="img-lwarp\lateximg-1.svg" alt="(-tikz- diagram)" style="" class="lateximage">
```

Cleanup: Alt Text

One way of doing this in lwarp is to use `\ThisAltText{alt text here}` before the tikz diagram. If the diagram is decorative or explained below, we can set it to an empty string.

```
\ThisAltText{A drawing of a circle with 1cm radius and is filled magenta.}
\begin{tikzpicture}
\draw[fill=magenta] (0,0) circle (1cm);
\end{tikzpicture}
```

Cleanup: Alt Text

Now when we examine the alt text of the circle, we see

```
<img src="img-lwarp\lateximg-1.svg"
     alt="(A drawing of a circle with 1cm radius and is filled magenta.)"
```

```
        style=""
        class="lateximage">
```

Cleanup: Heading structure

The heading structure does not have the right depth. To fix this, we need to adjust how the LaTeX section depths relate to the HTML headings.
One way to do this is to use the following options in the preamble after lwarp is loaded:

```
% --- HTML CUSTOMIZATION ---
\booltrue{FormatWP}
\booltrue{WPTitleHeading}
\boolfalse{WPMarkTOC}
```

Resources

- **lwarp**

Speaker notes