Quick and Easy Minimal Introduction to Accessible PDFs

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Key Points

Latex to tagged PDFs:

- Use LuaLatex (Update your TexLive to 2025)
- Add alt text to Figures
- Use Overleaf

Latex to HTML:

- LatexML
- MathJax

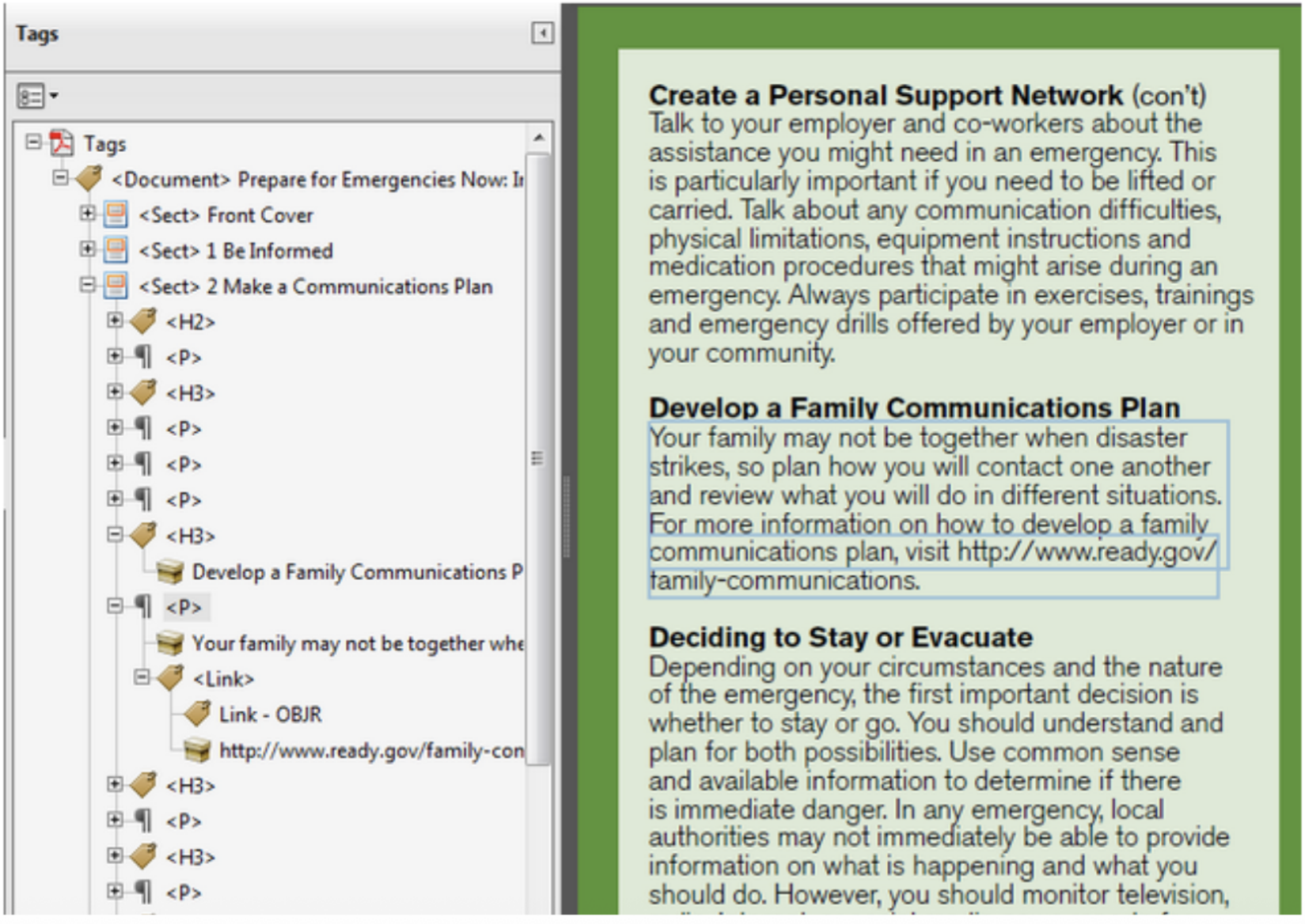
New or Other Platforms:

- PreTeXt
- Word, PowerPoint, Excel ... so they claimed

Teaching Pit Crew Website (TPC):

https://www.math.purdue.edu/~yipn/TPC/

What is a tagged PDFs



Latex to tagged PDFs

- Use LuaLatex (Update your TexLive to 2025)
- Use DocumentMetaData and unicode-math:

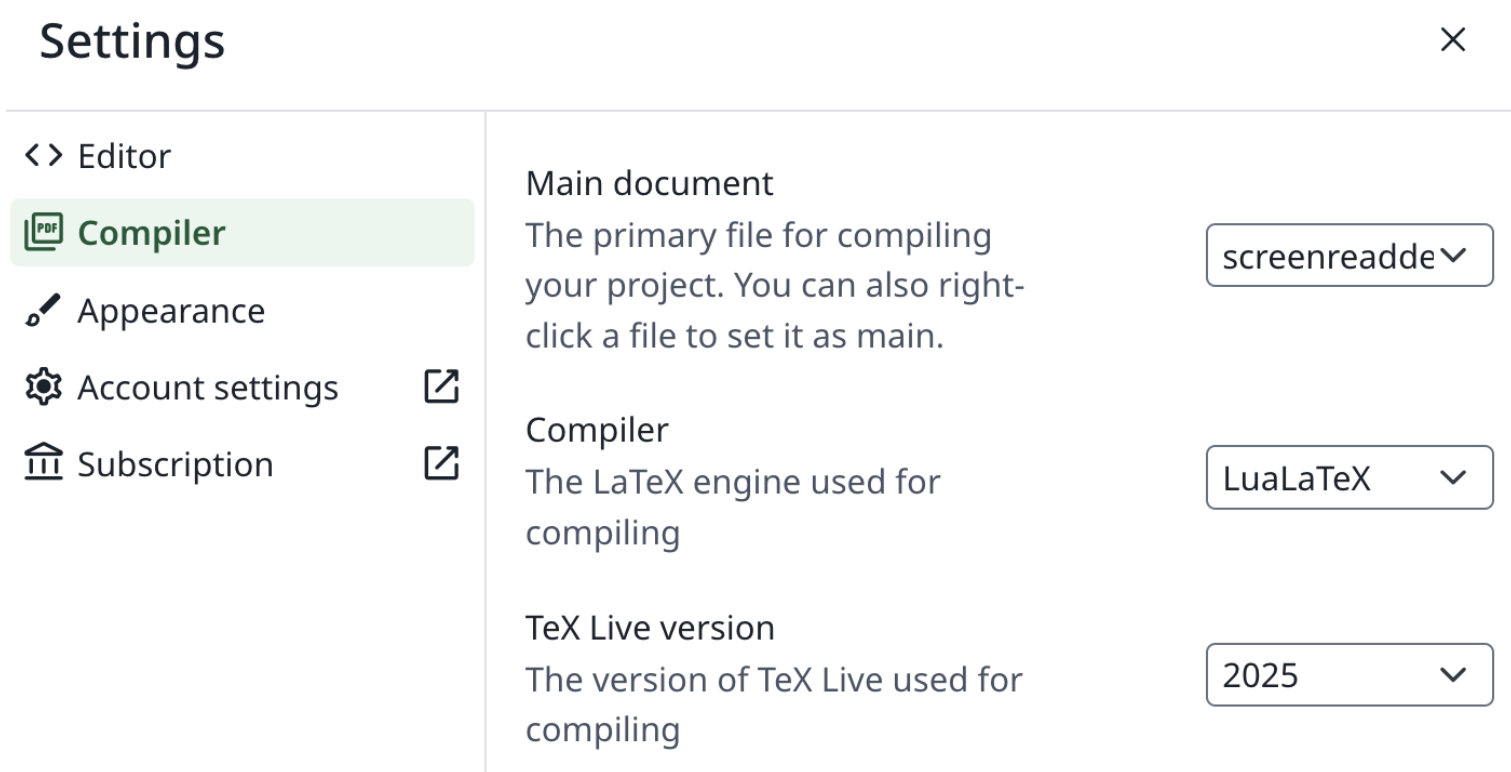
```
\DocumentMetadata{
        lang=en,
        pdfversion = 2.0,
        pdfstandard = ua-2, %or a-4
        tagging=on,
        tagging-setup={math/setup=mathml-SE}
}
\documentclass[12pt]{article}
%\documentstyle[portland, epsfig, 12pt]{article}
%\pagestyle{empty}
%\pagestyle{headings}
\usepackage{amsmath,amsfonts,amssymb}
\usepackage{epsfig}
\usepackage{showkeys}
\usepackage{unicode-math}
```

Latex to tagged PDFs

- Add alt text to Figures

```
1 \includegraphics[height=4cm,alt={Portrait of Shakespeare}]{william-shakespeare.jpg}
2 \includegraphics[height=4cm,artifact]{crinklepaper}\makebox[0pt][r]{Some text }
3 \includegraphics[height=\baselineskip,actualtext=A]{example-image-a.jpg}
```

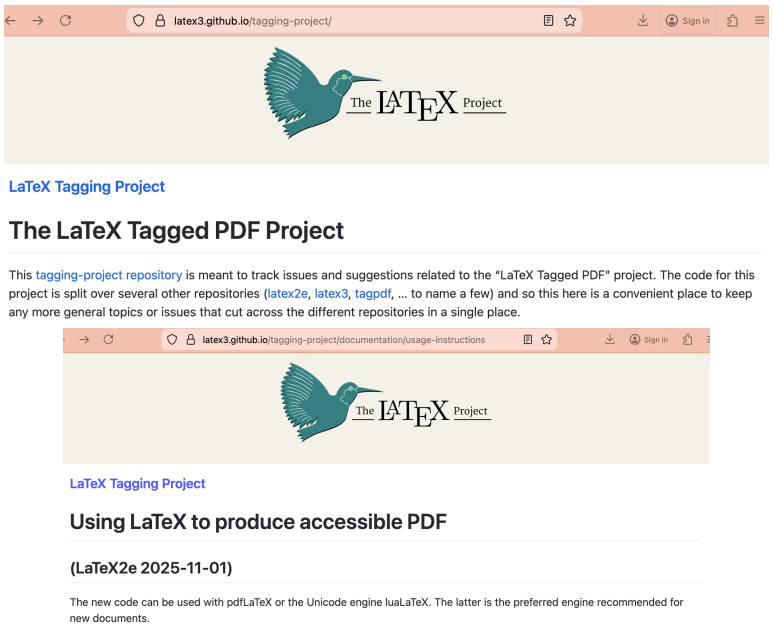
- You can also use Overleaf which includes packages: in File/Settings:



Latex to tagged PDFs

The following webpages has many **actual examples** and comments (all accessible from TPC):

- Examples by Mike Montoro
- Webpage of Tim Prescott
- Latex Tagging Project



Latex to HTML

- Use LatexML (see Arshak Petrosyan from TPC):

Using LaTeXML

Basic Command-Line Workflow

If you are comfortable with the command line, the workflow typically involves two steps:

```
latexml --dest=yourfile.xml yourfile.tex
latexmlpost --dest=yourfile.html yourfile.xml
```

Here is an example.

Single-Step Conversion

```
latexmlc --dest=yourfile.html yourfile.tex
```

Latex to HTML

- Use MathJax:

MathJax v4: TeX input, HTML output test

When $a \neq 0$, there are two solutions to $ax^2 + bx + c = 0$ and they are

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}.$$

The Lorenz Equations

$$\begin{aligned} \dot{x} &= \sigma(y - x) \\ \dot{y} &= \rho x - y - xz \\ \dot{z} &= -\beta z + xy \end{aligned}$$

The Cauchy-Schwarz Inequality

$$\left(\sum_{k=1}^{n} a_k b_k \right)^2 \leq \left(\sum_{k=1}^{n} a_k^2 \right) \left(\sum_{k=1}^{n} b_k^2 \right)$$

Latex to HTML

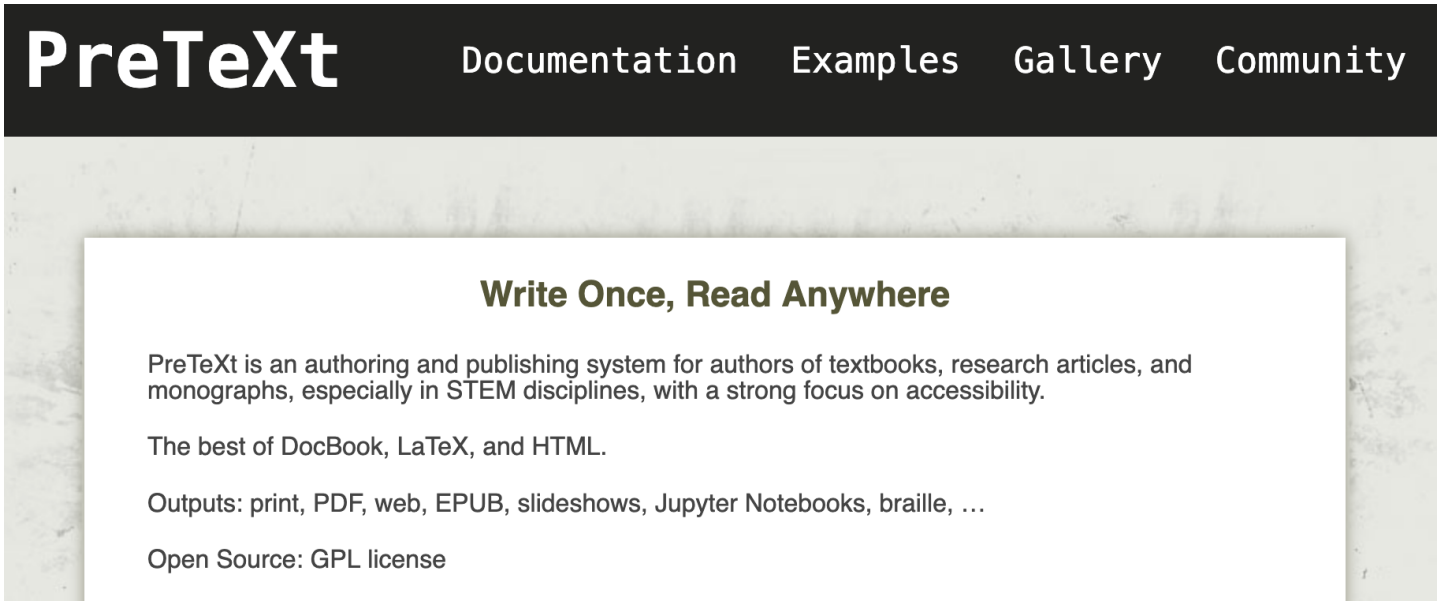
- Use MathJax:

```
<head>
  <script>
  MathJax = {
    tex: {inlineMath: {'[+]': [['$', '$']]}}
  };
  </script>
  <script defer src="https://cdn.jsdelivr.net/npm/mathjax@4/tex-chtml.js"></script>
</head>
```

```
<body>

<p>
  When $a \ne 0$, there are two solutions to \(ax^2 + bx + c = 0\) and they are
  $$x = {-b \pm \sqrt{b^2-4ac} \over 2a}.$$
</p>

<h2>The Lorenz Equations</h2>

<p>
  \begin{align}
    \dot{x} & = \sigma(y-x) \\
    \dot{y} & = \rho x - y - xz \\
    \dot{z} & = -\beta z + xy
  \end{align}
</p>
```

New Platforms

- PreTeXt:



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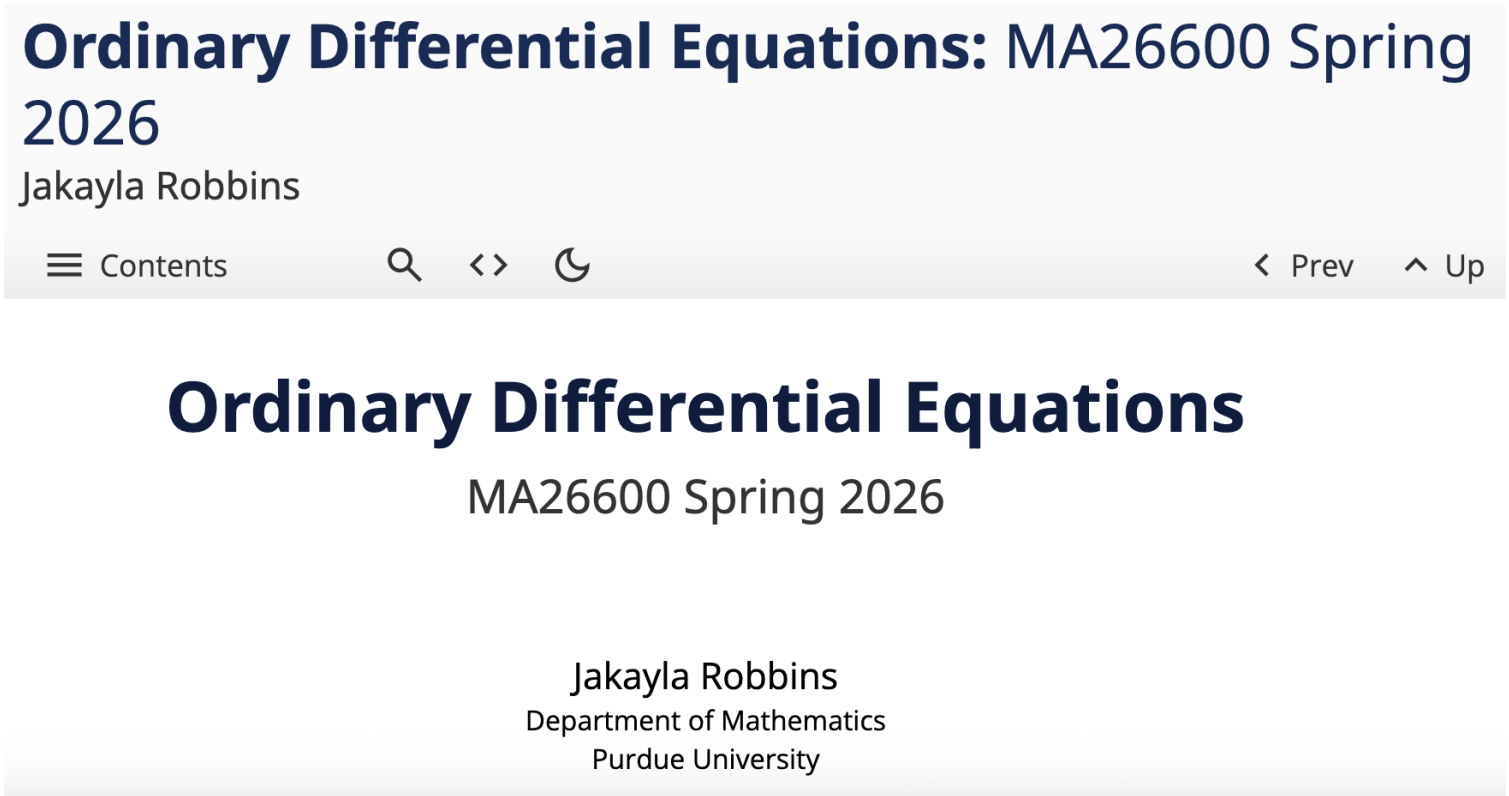
- PreTeXt (Examples from Jakayla Robbins):



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