



Cornell University

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# TeX Submissions

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## (La)TeX processing changes in Submission System 1.5

In April of 2025 we rolled out changes to how arXiv process (La)TeX submissions. We retired the long-used "AutoTeX" (Submission 1.0) system that we have used for decades in favor of a simpler, more straightforward process of converting (La)TeX submissions to PDFs in Submission 1.5.

## Comparison between the Legacy Submission System and the current one

For detailed documentation of the Legacy Submission System and its differences to the current one, please see [Legacy Submission System](#).

## Supported TeX Live versions

arXiv currently supports TeX Live 2023 and TeX Live 2025, with 2025 being the default. Submissions can select either of the two.

State of TeX Live in use:

- TeX Live 2023: state from 2023-05-21
- TeX Live 2025: state from 2025-08-03

## Supported TeX processors

We are currently only supporting the following types of TeX submissions:

- plain TeX submissions named `tex` during the submission: those are converted using `etex` followed by `dvips` and `ps2pdf` ;
- LaTeX submissions in DVI mode named `latex` during the submission: those are

converted using `latex` followed by `dvips` and `ps2pdf` ;

- LaTeX submissions in PDF mode named `pdflatex` during the submission: those are converted using `pdflatex` .

During the submission process, you will be asked which of the processor you want to use for your submission.

## Important changes introduced in TeX Live 2025

We list the most common errors we have seen in the set of current submissions.

Further information can be found at the [Overleaf announcement that TeX Live 2025 is now available](#).

### ISSUES WITH THE `ARRAY` PACKAGE

Under various circumstances, in particular when using a `revtex` documentclass together with the `array` package, compilation issue might arise.

We suggest either selecting TeX Live 2023, or requesting an older version of the `array` package using

```
\usepackage{array}[=2016-10-06]
```

### USAGE OF `CLEVEREF` PACKAGE

The `cleveref` package has not been updated to work with TeX Live 2025. When using it in a submission with TeX Live 2025, references will all include the same name (i.e., all `\cref{...}` will have the same "name" like "Proposition").

Either select TeX Live 2023 for your submission, or add, for each definition of a theorem-like environment you use, the necessary `\crefalias` .

Example: If there is

```
\newtheorem{theorem}{Theorem}[section]
```

then a line as follows needs to be added:

```
\AddToHook{env/theorem/begin}{\crefalias{section}{theorem}}
```

#### LOADING OF PACKAGES OUTSIDE THE TOPLEVEL

Loading packages using `\usepackage` or `\RequirePackage` will now fail when happening in a group `{...}`. This manifests itself most prominently in the use of `\spacespace`, `\doublespace` etc from the `setspace` package. These are environments (!) and need to be started/ended with `\begin{...}` ... `\end{...}`.

If e.g. `\doublespace` is used as is, it only starts the environment but does not close it. Any `\usepackage` further down will throw an error.

Solution: Either use proper environments with `\begin{...}` and `\end{...}`, or use the -ing commands like `\doublespacing` instead.

#### MINTED AND OTHER "FROZEN CACHE" PACKAGES

Caches generated by `minted` or any other package in the same vein require the same TeX Live version during generation of the cache and the one used at arXiv.

Note in particular that `minted` got a completely new version in TeX Live 2025, and the previous behavior and arguments to the `\usepackage[...]{minted}` call need revision. Most recipes given on the internet are still referring to minted **version 2** or below, while TeX Live 2025 uses **minted version 3**.

As a simple recipe:

- Use `\usepackage{minted}` in your document, and run `(pdf)latex` once

with `-shell-escape`. This should create a directory `_minted`.

- Include the `_minted` directory in your upload. No further changes are necessary. In particular, using options like `frozencache` etc are now unnecessary.

You can check success by running `(pdf)latex -no-shell-escape` and check whether errors related to `minted` occur.

#### LOADING ORDER OF `HYPERRREF` AND `HYPERTMP`

The package `hyperxmp` introduced a requirement that `hyperref` is begin loaded **before** `hyperxmp`. Since many times, the loading of `hyperref` also did set various parameters, this has to be changed.

Before -- this does not work with TeX Live 2025:

```
\usepackage{hyperxmp}
\usepackage[pdauthor={...},...]{hyperref}
```

needs to be converted to

```
\usepackage{hyperref}
\usepackage{hyperxmp}
\hypersetup{pdauthor={...},...}
```

#### OTHER PACKAGES AND CLASSES THAT ARE KNOWN TO HAVE PROBLEMS

- `aastex` version 6 and 7: similar to the array problem mentioned above, but the fix does not work.
- `revtex`: problems with array package mentioned above. Can usually be fixed as mentioned above.

#### Selecting the correct processor

Selecting the correct processor is generally an easy task, because we will offer you the hopefully correct one automatically during submission. If you want to decide by yourself, here is a quick guide:

- if it is plain TeX, select `tex` ;
- if it is a LaTeX document that includes `eps` files, select `latex` ;
- if it is a LaTeX document that includes `jpg` , `png` (and some more) files, select `pdflatex` ;
- if you don't know, select `pdflatex`

Note that at the moment, the processor type is fixed for all parts of a multi-file submission.

## Submissions are automatically processed

Your submission will be processed automatically according to the processor selected during the submission step.

This is a complex task, and the processing does not always lead to the desired or expected results. It is important for you, the author/submitter, to carefully check and verify the resulting PDF. You will be required to view the PDF during the submission process before you will be able to complete your submission.

Some aspects of the conversion can be controlled by uploading a [ooREADME](#) file, see the page for further details.

You can submit a collection of TeX input/include files, e.g. separate chapters, foreword, appendix, etc, and custom macros ([see below](#)) packaged in a (possibly compressed) `.tar` or `.zip` file. Main files (or "Toplevel files") can be in the root or in a subdirectory, but note that compilation is **always** done from the root of your submission directory, even if the main file is in a subdirectory. This is important when you use `\include` or `\input` or any other command that includes data from

external files.

That said, it is important that you do not include extraneous files (including unused figure files), leftover files, backup files, anything that does not belong to the paper you are submitting or is not needed for processing. Do not include journal templates, referee letters, or man pages. Tidy your submission before you pack it up.

You must submit any figures that go along with your paper. We recommend that you use appropriate TeX commands to include the figures inline with your paper (see below).

*Note:* arXiv recommends against using the `\today` macro in the standard `\date` field. Because pdf are occasionally rebuilt this date will change and may cause confusion, as outlined in our [FAQ page for this topic](#). To avoid this issue, do not use it unless you are comfortable with the displayed date changing periodically.

## Considerations for (La)TeX submissions

If you have a file named `foo.tex`, then do not include any associated auxiliary file or intermediate or resulting output file, e.g. `foo.ps` (or `foo.aux`, `foo.log`, `foo.toc`, `foo.lot`, `foo.lof`, `foo.dvi`, `foo.pdf`) in your submission. These will be automatically removed to allow the creation of an output file from your TeX file. Index ( `.ind` ) and processed bibtex ( `.bb1` ) files are an exception, [see below](#).

### Figure inclusion in LaTeX submissions

Depending on the selected processor (see above), only certain types of images can be included without conversion:

- for plain TeX, and for “LaTeX in DVI mode”, only (encapsulated) PostScript (`.ps` or `.eps`) are supported;
- for “LaTeX in PDF mode”, you may embed your `.pdf`, `.png`, `.jpg` figures using the same mechanisms.

Please note that arXiv does not perform “on the fly” figure file conversion during tex processing (i.e. “`-eps-converted-to.pdf`” files being present in your source directory). You must perform such conversion yourself before uploading, updating any effected inclusion command. This process ensures that you have examined the results of any figure conversion to ensure that the figures still contain scientifically correct information and that arXiv is not responsible for the scientific accuracy of your figures.

The most flexible and robust figure inclusion is provided by the `graphics` and `graphicx` packages and the `\includegraphics` command defined therein. We highly recommend you use them for your figure inclusion. arXiv does not support the `psfig` package any longer. You may not include your own `psfig.sty`, as this will cause your source to fail. The functionality it required was deprecated prior to [TeXLive 2016](#) and this is not something we can control. Older submissions that have already been announced with the `psfig` package will still work. Please update your source to a more modern inclusion command.

Note that some software will permit you to include a mix of PostScript and PDFLaTeX-compatible figures and will perform the conversions to the appropriate format for you on the fly. arXiv does not permit such software to run during the TeX processing. Why? It is possible for conversion issues to arise that can alter the scientific meaning or interpretation of your figure. Rather than invite such possibilities, we require that you use a unified figure format.

### **Avoid embedding JavaScript in your PDF files**

Do not include embedded JavaScript such as animated gifs, movies, or HTML in your PDF. Submissions with embedded JavaScript are automatically rejected due to the potential security risks posed to arXiv systems.

- Submit all movies and animated GIFS as separate(non-JavaScript) ancillary files.
- Remove or disable JavaScript when building your PDF or generate PDFs using standard tools such as Adobe Distiller.



## Figure inclusion in plain TeX

For plain TeX submissions, use the plain tex interface to the graphics package (`graphicx.tex`) or a macro package like `epsf` or `epsfig`.

arXiv does not presently support PDFTeX.

## Considerations for PDFLaTeX submissions

arXiv fully supports and automatically recognizes PDFLaTeX.

- Should you need conditional branching in your source, use the [ifpdf](#) package. Do not re-invent the wheel. [ifpdf](#) provides a robust and well tested mechanism to distinguish between pdflatex in pdf mode and other modes or engines.
- You should not use `\pdfoutput` to change the output format.
- Some packages may require a particular back-end driver, in the form of a package option, e.g. `\usepackage[pdftex]{...}`. However, the graphics and hyperref packages determine the proper driver automatically; you do not have to make this explicit choice and should not do so to avoid conflicts.
- Figures can be included in **JPEG**, **PNG**, or **PDF** format with the standard graphics package. For security reasons arXiv does not allow for automated format conversion, so your figures must be in the proper format already.
- Unlike native LaTeX, the default output format for PDFLaTeX is PDF, with no intermediate DVI or PostScript. Thus, these formats are *not* available for download for PDFLaTeX submissions.

We do **not** have your style files or macros

We don't provide any further packages besides what is provided by the TeX Live system. That means in particular that some publisher styles will not be available. Please check the list of TeX Live packages provided by arXiv at the current time is

[here](#).

## Do not submit in double-spaced “referee” mode

Avoid inadvertently submitting your paper in double-spaced referee mode, since it wastes paper on a global scale. Readers prefer to have a compact single-spaced version, as it would appear in a printed journal.

## Prepare the references carefully

We strongly encourage you to include arXiv’s `YYMM.NNNNN` , [identifiers](#) in your reference list for both published and unpublished papers. Note also that many publishers allow e-print identifiers to appear in the references of papers submitted.

If you use standard identifiers of the form 1510.00322, arXiv:1510.00322, 0901.0512, arXiv:0901.0512, hep-ph/9409201 or arXiv:hep-ph/9409201, they can be easily harvested by automatic software. For example,

```
\bedim{upsilon}  
C.T.H. Davies {\em et al.}, Phys. Rev {\bf D} 50 (1994) 6963,  
hep-lat/9406017.
```

Do not include extraneous font commands, spaces, tildes, braces, or line-breaks within the e-print identifier: this will cause your references to be missed by automated extraction software. See also notes about [references to and in arXiv documents](#) and [collection of references at INSPIRE](#). Use of e-print identifiers is a significant aid to the INSPIRE database. It also facilitates automatic network hyperlinks of references from within papers.

If you are submitting a group of `.tex` files, automated reference extraction by

INSPIRE and others will be more accurate and faster if your references are all in one file. This file should have the `\begin{thebibliography}` or similar command within it, and should be called `foo.bbl` to correspond to a given `foo.tex` source file.

Note for submitters who use Overleaf: Please refer to [their help documentation](#) regarding how to prepare your document for submission to arXiv.

Include `.bib` or `.bbl` files if you use BibTeX/Biber

arXiv now provides support for bib file processing using various processors like `biblatex` (with auto-selection of the correct backend) and `bibtex`.

It is also possible to upload a pre-generated `.bbl` file for your paper. In this case, the name of the `.bbl` file *must* match the name of the main `.tex` file for the system to process the references correctly.

Our system will use the `.bbl` file if it is present, and otherwise will automatically detect the usage of bibliography and select the bib-compiler accordingly. In case the `.bbl` file is not uploaded, and at least one necessary `.bib` file is missing, the submission system will block you from proceeding with your submission.

We detect `biblatex` usage and will run the program selected as backend in the `biblatex` configuration (that is, one of `biber`, `bibtex`, `bibtex8`), and otherwise use `bibtex`.

In the non-`biblatex` case, we use `bibtex`. If you need to use another bib-processor (like e.g., `bibtex8` or `upbibtex`), you must pre-compile the bibliography, upload the `.bbl` and preserve the `.bbl`.

Note for submitters who use Overleaf: Please refer to [their help documentation](#) regarding how to prepare your document for submission to arXiv.

Potential problems with biblatex `.bbl` files

**The `.bbl` file and paper submission were produced by different programs**

Biblatex can run on a dedicated Biber backend or BibTeX; however, when submitting a biblatex `.bbl` file, your paper and `.bbl` file must be created by the same program. e.g.

- If you use biblatex with Biber as a backend to produce your document, then your document will expect a `.bbl` produced by Biber.
- If you use biblatex with BibTeX as a backend to produce your document, then your document will expect a `.bbl` produced by BibTeX.

Do not mix and match papers produced by Biber with a `.bbl` produced by BibTeX or vice versa. This will only result in errors and frustration. [Lean more information about biblatex, BibTeX and Biber.](#)

**The `.bbl` file version is not compatible with biblatex or Biber on arXiv**

When uploading the `.bbl` file for biblatex, it must be compatible with the version of biblatex or Biber on the arXiv at the present time. If your `.bbl` for biblatex is not compatible, then your submission will have errors. During submission, you should see a warning about incompatible bbl versions. [View arXiv's current version of TeXLive.](#)

To be more specific: arXiv offers currently TeX Live 2023 and 2025 (the default). TeX Live 2025 includes biblatex 3.20, Biber 2.20, and uses bbl format 3.3. TeX Live 2023 included biblatex 3.19, Biber 2.19, and uses bbl format 3.2.

For TeX Live 2023, we have taken steps that both bbl formats, 3.2 (TeX Live 2023) and 3.3 (TeX Live 2025), are supported by arXiv. For TeX Live 2025, only bbl format 3.3 is supported.

Include `.ind` files if you use `makeindex`

We do not run `makeindex` in the auto-TeXing procedure. If you use it, include in your submission the `.ind` file that `makeindex` produces on your own machine; otherwise your index will not appear.

It is difficult to automatically perform `makeindex` processing to the authors' expectations because of the multiple optional arguments and optional style selections. Therefore, arXiv asks authors to provide their pre-processed `.ind` file(s) along with their (La)TeX source file(s).

Note for submitters who use Overleaf: Please refer to [their help documentation](#) regarding how to prepare your document for submission to arXiv.

Include your `.gls` or `.nls` if you use any glossary or nomenclature packages

Similar to [index](#) files, we do not process `.glo` or `.nlo` into the resultant `.gls` or `.nls` files. You must provide these files if you have any special nomenclature in your document.

Note for submitters who use Overleaf: Please refer to [their help documentation](#) regarding how to prepare your document for submission to arXiv.

## Usage of `xr`, `subfiles`, and external documents

In general, usage of the `xr` (and the deprecated `xr-hyper`, which is subsumed by `xr`), is problematic and we advise against the usage of it on arXiv. `xr` provides a way to link to **external documents**, but renaming of files, file locations etc will be different on the arXiv servers, and thus links to external documents will **not** work.

In particular, if a submission consists of two separately compiled PDFs, and one contains `xr` based links to the other, these links will not function in the final document. We concatenate the single PDFs, and thus the external file will be lost.

In such a case, there is an option to reformat the two documents into main and subfile(s) and use the `subfiles` package. Using `xr` and `subfiles` with multiple documents can work when the setup is correctly done:

- Assume that the main file is called `my-submission`
- The main document loads `xr` and `subfiles`, and declares `\externaldocument[M-]{my-submission}[]` -- the empty optional argument at the end ensures that `hyperref` creates internal links.
- The sub-document uses `subfiles` document class, loads `xr`, and also declares the same `\externaldocument...` as above
- The prefix `M-` is arbitrary and can be chosen, please see the documentation of `xr`

This should resolve all links within any of the subfiles or links across files as internal document links.

## Avoid mistakes in the text

Common mistakes can be avoided by following some simple [guidelines](#). If your submission does not TeX properly, you will receive the log from our TeX processing at the *Process* step. The information contained in this complete log should be sufficient to identify the problem, so examine it carefully; check the end of the log for TeX errors. Be sure to [note any programmatically changed](#) filenames during file upload.

## Problems with special TeX characters in hyperlinks (URLs) -- in particular JHEP3.cls

If hyperlinks for URLs containing '#' appear as '^#' in arXiv generated PDF, the macro package being used to generate these hyperlinks does not properly escape special characters in pdf strings. Either refer to the [CTAN website](#) for detailed information about the current hyperTeX or define the URLs with the following workaround:

instead of e.g.:

```
\href{http://example.com/some-page.html\#destination}
{destination}
```

use:

```
\href{http://example.com/some-page.html\string#destination}
{destination}
```

If you use macros like:

```
\newcommand{\link}[2]{\href{http://example.com/some-
page.html\##1}{#2}}
```

define:

```
\bgroup\catcode`\#=12\gdef\hash{#}\egroup \newcommand{\link}[2]
{\href{http://example.com/some-page.html\hash #1}{#2}}
```

instead.

Hidden files will be deleted upon announcement

Please do not use hidden files or directories in your source package. These hidden files (i.e. files or directories beginning with a period character, such as `.cache/`) will be deleted upon announcement, but *may* work at the *Process* or *Preview* submission stages. The rationale being that such files may be cruft from version control systems, etc. and should not be a part of an archival version of your source. This means that any packages that allow for or rely upon these structures (e.g. `minted.sty`) may function on your machine, but will fail once announced.

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