

Quick start for LaTeXing with IEEEtran.cls for IEEE Computer Society Conferences

First Author, Second Author
University of Examples, Germany
{lastname}@example.org

Third Author
School of Electrical and
Computer Examples
Georgia Institute of Examples
Atlanta, Georgia 30332-0250
<http://www.example.org>


Abstract—Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

I. INTRODUCTION

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.


Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed

diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate  etus eu enim. Vestibulum pellentesque felis eu massa.

The remainder of the paper starts with a presentation of related work (Section II). It is followed by a presentation of hints on \LaTeX (??). Finally, a conclusion is drawn and outlook on future work is made (Section IV).

II. RELATED WORK

Winery [1] is a graphical  modeling tool. The whole idea of TOSCA is explained by Binz et al. [2].

III. LATEX HINTS

This section contains hints on writing LaTeX. It focuses on minimal examples, which can be directly adapted to the content

A. Handling of paragraphs

One sentence per line. This rule is important for the usage of version control systems. A new line is generated with a blank line. As you would do in Word: New paragraphs are generated by pressing enter. In LaTeX, this does not lead to a new paragraph as LaTeX joins subsequent lines. In case you want a new paragraph, just press enter twice (!). This leads to an empty line. In word, there is the functionality to press shift and enter. This leads to a hard line break. The text starts at the beginning of a new line. In LaTeX, you can do that by using two backslashes (\backslash).

This is rarely used.

Please do *not* use two backslashes for new paragraphs. For instance, this sentence belongs to the same paragraph, whereas the last one started a new one. A long motivation for that is provided at <http://loopspace.mathforge.org/HowDidIDoThat/TeX/VCS/#section.3>.

Corresponding L^AT_EX code of paper-conference.tex

```
436 One sentence per line.
437 This rule is important for the usage of version control systems.
438 A new line is generated with a blank line.
439 As you would do in Word:
440 New paragraphs are generated by pressing enter.
441 In LATEX, this does not lead to a new paragraph as LATEX joins
    subsequent lines.
442 In case you want a new paragraph, just press enter twice (!).
443 This leads to an empty line.
444 In word, there is the functionality to press shift and enter.
445 This leads to a hard line break.
446 The text starts at the beginning of a new line.
447 In LATEX, you can do that by using two backslashes
    (\textbackslash\textbackslash)\\.
448 This is rarely used.
449
450 Please do \textit{not} use two backslashes for new paragraphs.
451 For instance, this sentence belongs to the same paragraph,
    whereas the last one started a new one.
452 A long motivation for that is provided at
    \url{http://loopspace.mathforge.org/HowDidIDoThat/TeX/VCS/#section}
```

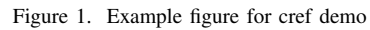


Figure 2. Example table for cref demo

Corresponding L^AT_EX code of paper-conference.tex

```
463 In case you write \enquote{application-specific}, then the word
    will only be hyphenated at the dash.
464 You can also write \verb\appla\allowbreak{tion-specific1
    (result: applica\allowbreak{tion-specific)}, but this is
    much more effort.
465
466 You can now write words containing hyphens which are hyphenated
    at other places in the word.
467 For instance, \verb\applaapplication"=specific1 gets
    applicaion"=specific.
468 This is enabled by an additional configuration of the babel
    package.
```

Figure 2 shows a simple fact, although Figure 2 could also show something else.

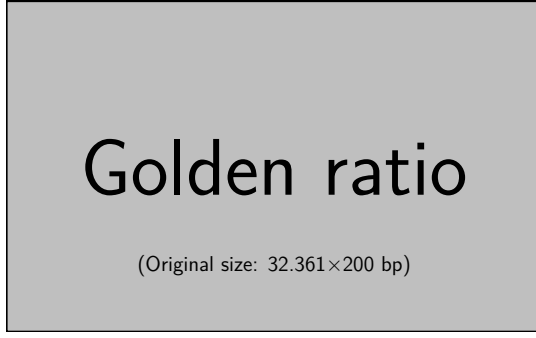


Figure 3. Simple Figure. Based on Scharrer [3].

Section III-E shows a simple fact, although Section III-E could also show something else.

Corresponding L^AT_EX code of paper-conference.tex

```
522 \Cref{fig:ex:cref} shows a simple fact, although
    \cref{fig:ex:cref} could also show something else.
523
524 \Cref{tab:ex:cref} shows a simple fact, although
    \cref{tab:ex:cref} could also show something else.
525
526 \Cref{sec:ex:cref} shows a simple fact, although
    \cref{sec:ex:cref} could also show something else.
```

F. Figures

Figure 3 shows something interesting.

Corresponding L^AT_EX code of paper-conference.tex

```
531 \Cref{fig:label} shows something interesting.
532
533 \begin{figure}
534   \centering
535   \includegraphics[width=.8\linewidth]{example-image-golden}
536   \caption[Simple Figure]{Simple Figure. Based on \cit{mwe}.}
537   \label{fig:label}
538 \end{figure}
```

One can span a figure across multiple columns by using `\begin{figure*}`. See Figure 4 as an example.

Corresponding L^AT_EX code of paper-conference.tex

```
546 \begin{figure*}
547   \centering
548   % note that \textwidth is used instead of \linewidth
549   % This ensures that the graphics width is 60% of the "page"
550   % (text block), and not just 60% of the current text column
551   % See https://tex.stackexchange.com/a/17085/9075 for details
552   \includegraphics[width=.6\textwidth]{example-image-16x9}
553   \caption{16x9 Figure}
554   \label{fig:16x9}
555 \end{figure*}
```

G. Sub Figures

An example of two sub figures is shown in Figure 5.

Corresponding L^AT_EX code of paper-conference.tex

```
563 \begin{figure*}[!b]
564   \centering
565   \subfloat[Case
566     I]{\includegraphics[width=.4\linewidth]{example-image-a}%}
567   \hfil
568   \subfloat[Case
569     II]{\includegraphics[width=.4\linewidth]{example-image-b}%}
570   \caption{Example figure with two sub figures.}
571   \label{fig:two_sub_figures}
572 \end{figure*}
```

Note that often IEEE papers with subfigures do not employ subfigure captions (using the optional argument to `\subfloat[]`), but instead will reference/describe all of them (a), (b), etc., within the main caption. Be aware that for `subfig.sty` to generate the (a), (b), etc., subfigure labels, the optional argument to `\subfloat` must be present. If a subcaption is not desired, just leave its contents blank, e.g., `\subfloat[]`. An example is shown in Figure 6.

Corresponding L^AT_EX code of paper-conference.tex

```
585 \begin{figure*}[!b]
586   \centering
587   \subfloat[]{\includegraphics[width=.4\linewidth]{example-image-a}%}
588   \label{fig:first_case_ieee}}
589   \hfil
590   \subfloat[]{\includegraphics[width=.4\linewidth]{example-image-b}%}
591   \label{fig:second_case_ieee}}
592   \caption{Example figure with two sub figures. IEEE style. (a)
593     The first case. (b) The second case.}
594   \label{fig:two_sub_figures_ieee}
595 \end{figure*}
```

H. Tables

Note that IEEE does not support `\begin{table}`, one has to use `\begin{figure}`.

Corresponding L^AT_EX code of paper-conference.tex

```
602 \begin{figure}
603   \caption{Simple Table}
604   \label{tab:simple}
605   \centering
606   \begin{tabular}{ll}
607     \toprule
608     Heading1 & Heading2 \\
609     \midrule
610     One      & Two      \\
611     Three    & Four     \\
612     \bottomrule
613   \end{tabular}
614 \end{figure}
```

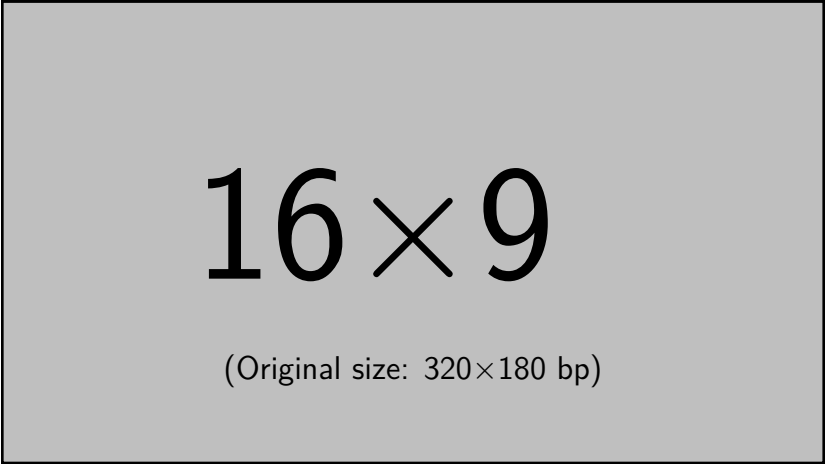
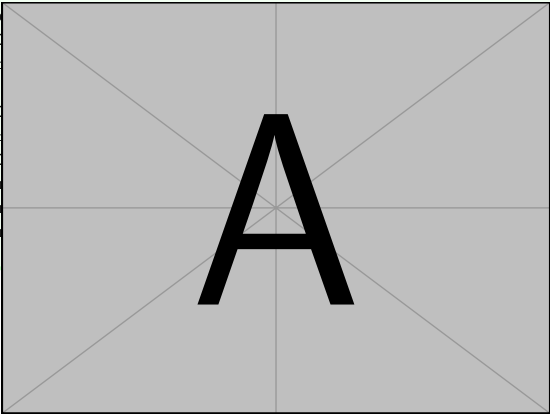


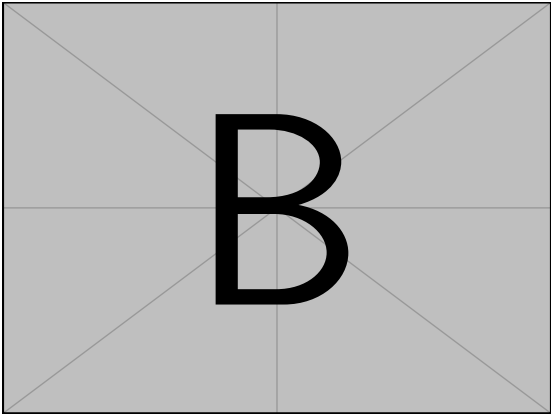
Figure 4. 16x9 Figure

Corresponding L^AT_EX code of paper-conference.tex

```
618 % Source: https://tex.stackexchange.com/a/468994/9075
619 \begin{figure}
620 \caption{Table with diagonal line}
621 \label{tab:diag}
622 \begin{center}
623 \b
624 \h
625 \d
626 \h
627 &
628 \h
629 \ex
630 \ex
631 \ex
```

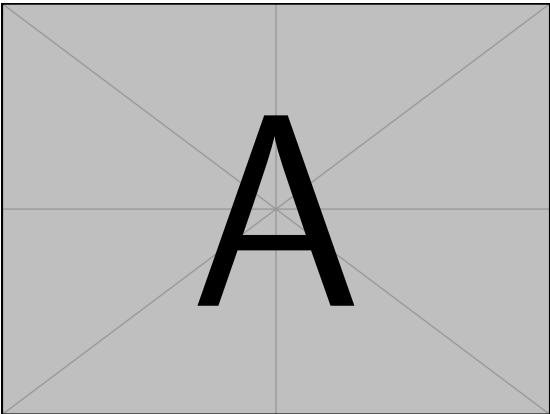


(a) Case I

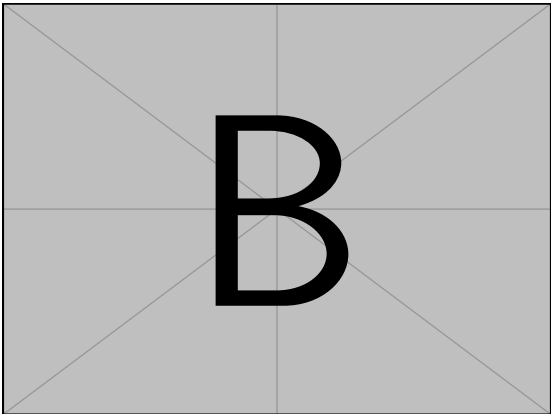


(b) Case II

Figure 5. Example figure with two sub figures.



(a)



(b)

Figure 6. Example figure with two sub figures. IEEE style. (a) The first case. (b) The second case.

Figure 7. Simple Table

Heading1	Heading2
One Thee	Two Four

Figure 8. Table with diagonal line

Diag Column Head I	Diag Column Head II	Second	Third
		foo	bar

I. Source Code

Listing 1 shows source code written in XML. Line 2 contains a comment.

```

1 <listing name="example">
2   <!-- comment -->
3   <content>not interesting</content>
4 </listing>
```

Listing 1. Example XML Listing

Corresponding L^AT_EX code of paper-conference.tex

```

638 \Cref{lst:XML} shows source code written in XML.
639 \Cref{line:comment} contains a comment.
640
641 \begin{lstlisting}[
642   language=XML,
643   caption={Example XML Listing},
644   label={lst:XML}]
645 <listing name="example">
646   <!-- comment --> (* \label{line:comment} *)
647   <content>not interesting</content>
648 </listing>
649 \end{lstlisting}
```

One can also add `float` as paramter to have the listing floating. Listing 2 shows the floating listing.

Corresponding L^AT_EX code of paper-conference.tex

```

656 \begin{lstlisting}[
657   % one can adjust spacing here if required
658   % aboveskip=2.5\baselineskip,
659   % belowskip=-.8\baselineskip,
660   float,
661   language=XML,
662   caption={Example XML listing -- placed as floating figure},
663   label={lst:fXML}]
664 <listing name="example">
665   Floating
666 </listing>
667 \end{lstlisting}
```

```

1 <listing name="example">
2   Floating
3 </listing>
```

Listing 2. Example XML listing – placed as floating figure

```

1 {
2   key: "value"
3 }
```

Listing 3. Example JSON listing – placed as floating figure

```

1 public class Hello {
2     public static void main (String[] args) {
3         System.out.println("Hello World!");
4     }
5 }
```

Listing 4. Example Java listing

One can also typeset JSON as shown in Listing 3.

Corresponding L^AT_EX code of paper-conference.tex

```

673 \begin{lstlisting}[
674   float,
675   language=json,
676   caption={Example JSON listing -- placed as floating figure},
677   label={lst:json}]
678 {
679   key: "value"
680 }
681 \end{lstlisting}
```

Java is also possible as shown in Listing 4.

Corresponding L^AT_EX code of paper-conference.tex

```

687 \begin{lstlisting}[
688   caption={Example Java listing},
689   label=lst:java,
690   language=Java,
691   float]
692 public class Hello {
693     public static void main (String[] args) {
694         System.out.println("Hello World!");
695     }
696 }
697 \end{lstlisting}
```

J. Itemization

One can list items as follows:

- Item One
- Item Two

Corresponding L^AT_EX code of paper-conference.tex

```

705 \begin{itemize}
706 \item Item One
707 \item Item Two
708 \end{itemize}
```

With the package `paralist`, one can create itemizations with lesser spacing:

- Item One
- Item Two

Corresponding L^AT_EX code of paper-conference.tex

```
714 \begin{compactitem}
715 \item Item One
716 \item Item Two
717 \end{compactitem}
```

One can enumerate items as follows:

- 1) Item One
- 2) Item Two

Corresponding L^AT_EX code of paper-conference.tex

```
723 \begin{enumerate}
724 \item Item One
725 \item Item Two
726 \end{enumerate}
```

With the package paralist, one can create enumerations with lesser spacing:

- 1) Item One
- 2) Item Two

Corresponding L^AT_EX code of paper-conference.tex

```
732 \begin{compactenum}
733 \item Item One
734 \item Item Two
735 \end{compactenum}
```

With paralist, one can even have all items typeset after each other and have them clean in the tex document:

- 1) All these items... 2) ...appear in one line 3) This is enabled by the paralist package.

Corresponding L^AT_EX code of paper-conference.tex

```
741 \begin{inparaenum}
742 \item All these items...
743 \item ...appear in one line
744 \item This is enabled by the paralist package.
745 \end{inparaenum}
```

K. Other Features

The words “workflow” and “dwarflike” can be copied from the PDF and pasted to a text file.

Corresponding L^AT_EX code of paper-conference.tex

```
751 The words \enquote{workflow} and \enquote{dwarflike} can be
copied from the PDF and pasted to a text file.
```

The symbol for powerset is now correct: \wp and not a Weierstrass p (\wp).

$\wp(1, 2, 3)$

Corresponding L^AT_EX code of paper-conference.tex

```
755 The symbol for powerset is now correct:  $\wpowerset$  and not a
Weierstrass p ( $\wp$ ).
756
757  $\wpowerset(\{1,2,3\})$ 
```

Brackets work as designed: $\langle \text{test} \rangle$ One can also input backquotes in verbatim text: `\verb|`test`|`.

Corresponding L^AT_EX code of paper-conference.tex

```
761 Brackets work as designed:
762  $\langle \text{test} \rangle$ 
763 One can also input backquotes in verbatim text: \verb|`test`|.
```

IV. CONCLUSION AND OUTLOOK

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

ACKNOWLEDGMENT

Identification of funding sources and other support, and thanks to individuals and groups that assisted in the research and the preparation of the work should be included in an acknowledgment section, which is placed just before the reference section in your document [4].

In the bibliography, use `\textsuperscript` for “st”, “nd”, ...: E.g., “The 2nd conference on examples”. When you use JabRef, you can use the clean up command to achieve that. See <https://help.jabref.org/en/CleanupEntries> for an overview of the cleanup functionality.

REFERENCES

- [1] O. Kopp *et al.*, “Winery – A Modeling Tool for TOSCA-based Cloud Applications,” in *Proceedings of 11th International Conference on Service-Oriented Computing (ICSOC’13)*, ser. LNCS, vol. 8274. Springer Berlin Heidelberg, 2013, pp. 700–704.
- [2] T. Binz, G. Breiter, F. Leymann, and T. Spatzier, “Portable Cloud Services Using TOSCA,” *IEEE Internet Computing*, vol. 16, no. 03, pp. 80–85, May 2012.
- [3] M. Scharrer, *The mwe Package*, 2017. [Online]. Available: <http://texdoc.net/mwe>
- [4] B. Veytsman, “L^AT_EX class for the association for computing machinery – acknowledgement information,” Aug. 2021.

[Online]. Available: <https://github.com/borisveytsman/acmart/blob/1704c8bf7eee92a1515ff755f5118b6a22bb1f8e/samples/samples.dtx#L709>

All links were last followed on October 5, 2020.