

# Submission Example

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December 12, 2009

## Abstract

This is an example submission to the Archive of Formal Proof. It shows submission requirements and explains the structure of a simple typical submission.

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## 1 An Example Submission

```
theory Submission
  imports Main
begin
```

This is an example submission to the Archive of Formal Proof.

The scope of the archive encompasses examples, textbook-style proofs, libraries and larger scientific developments.

## 2 Format of a submission

Submission should be by email to `afp-submit` at `in.tum.de` and contain the following:

- Title, authors, and abstract. The abstract should be in plain text or plain html (no images/styles).
- A short name that will become the directory name of the submission.

- The Isabelle theories: a tar.gz file with the theory files, ROOT.ML, and a README file or document directory. The theories should work with the current release of Isabelle. Each theory file should include a header comment like the one in this theory.
- A statement whether you would like to release your submission under the BSD or the LGPL license.

The submission of the example you are reading is at <http://afp.sf.net/release/afp-Example-Submission-current.tar.gz>.

### 3 Proof styles

We accept proofs in **apply**-script style like the following.

```
lemma true: True
  apply blast
done
```

We encourage structured proofs with comments and explanations. The Isabelle document preparation tools support antiquotations like *True*, normal L<sup>A</sup>T<sub>E</sub>X commands and BibTeX citations. See [1] and the Isabelle documentation for more information.

```
lemma very-true: True
proof –
  — a very roundabout way
  fix P have P ⟶ True by blast
  — to show True
  thus True by blast
qed
```

### 4 The anatomy of a submission

The directory structure of this example submission is the following

```
Example-Submission/
  document/
    root.tex
    root.bib
  config
  IsaMakefile
  ROOT.ML
  README.html
  Submission.thy
```

The document directory contains the L<sup>A</sup>T<sub>E</sub>X master file `root.tex` and the bibliography `root.bib`. Your submission should contain this L<sup>A</sup>T<sub>E</sub>X setup or

a `README.html` (or both) with title, abstract, author, and any further documentation you wish to provide. We encourage  $\text{\LaTeX}$  style documentation over `README.html`.

The file `config` contains maintenance information. This is optional. If you do not submit one, we will create one for you.

The `IsaMakefile` tells the automated build scripts how to test your Isabelle theories. For a usual setup you only need to copy the version from this example and adjust the variable `SESSION-NAME`. If you need support with this, please contact us or ask on the `isabelle-users` mailing list.

`ROOT.ML` controls which theories should be loaded. If you have one main theory that depends on all the others, you only need to include this one. You can also use `ROOT.ML` to control the order in which theories are read. If you would like to build on other entries in the archive, which we encourage, you can use the `add_path` command in `ROOT.ML` to add the directory of the other entry to the theory search path. See the `ROOT.ML` of this submission for an example.

The file `Submission.thy` is the Isabelle theory containing this text. A usual submission has more than one theory file. You can devise your own subdirectory structure if you have more theories and one directory becomes too crowded. You can also build on existing articles in the AFP by importing them. For example, if you build on theory `W` in the article `MiniML`, the way to import it is:

```
theory MyTheory
  imports "../MiniML/W"
begin
```

To build on a theory that is in the Isabelle distribution, but not in one of the standard images like `HOL`, use something like the following:

```
theory MyTheory
  imports "~/src/HOL/Number_Theory/Number_Theory"
begin

end
```

## References

- [1] T. Nipkow, L. Paulson, and M. Wenzel. *Isabelle/HOL — A Proof Assistant for Higher-Order Logic*, volume 2283. 2002. <http://www.in.tum.de/~nipkow/LNCS2283/>.