The Coq Proof Assistant

The standard library

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πr^2 **Project (formerly LogiCal, then TypiCal)**

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This document is a short description of the Coq standard library. This library comes with the system as a complement of the core library (the **Init** library ; see the Reference Manual for a description of this library). It provides a set of modules directly available through the `Require` command.

The standard library is composed of the following subdirectories:

Logic Classical logic and dependent equality

Bool Booleans (basic functions and results)

Arith Basic Peano arithmetic

ZArith Basic integer arithmetic

Reals Classical Real Numbers and Analysis

Lists Monomorphic and polymorphic lists (basic functions and results), Streams (infinite sequences defined with co-inductive types)

Sets Sets (classical, constructive, finite, infinite, power set, etc.)

Relations Relations (definitions and basic results).

Sorting Sorted list (basic definitions and heapsort correctness).

Wellfounded Well-founded relations (basic results).

Program Tactics to deal with dependently-typed programs and their proofs.

Classes Standard type class instances on relations and Coq part of the setoid rewriting tactic.

Each of these subdirectories contains a set of modules, whose specifications (Gallina files) have been roughly, and automatically, pasted in the following pages. There is also a version of this document in HTML format on the WWW, which you can access from the Coq home page at `http://coq.inria.fr/library`.