OUTLINE

1. Coq 8.13
2. Coq 8.14, new features
3. Coq Future
4. Q & A
Coq 8.13 Schedule

- **July 2020**: 8.12.0 release
- **November 2020**: Feature freeze, 8.13 beta
- **December 2020**: 8.13.0 release
- **January 2021**: 8.13.1 release
- **February 2021**: Coq Platform 2021.02.1 (8.13.2) release

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Coq Dev
Coq 8.13 Features

https://coq.inria.fr/refman/changes.html#version-8-13

- Primitive persistent array type
- UIP for equality in SProp (with a caveat)
- Improvements of notations, implicit argument handling
- More consistent grammars in the reference manual, matching the implementation
- lia and zify enhancements to support boolean operators and the signed integers
- Fix an incompleteness bug in the treatment of cumulative inductive types
Upgrading to 8.13 - Warnings

- Hint ... raises a warning if no locality attribute is given

Migration HowTo (by Pierre Marie Pédrot)

https://youtu.be/RLRNetkpExY for the CoqPL 2021 explanation :-)

- Notation selection, more specific notation first
  - specific = matches a larger term
  - order of Import matters, most recent wins
The coq-native OPAM package

- lazy < vm_compute < native_compute
  - \(\lambda\)-terms compiled using ocamlopt
  - Interesting to run reflexive tactics

- CEP#48 by Erik Martin Dorel & Pierre Roux
  - opt in: opam install coq-native
  - warning: requires more memory/time to compile .vo
The github.com/coq/platform project

A distribution of Coq packages

Main objectives: easy, standard, tested

Output:

- Scripts to setup/install on Win, OSX, Linux
- Binary installers for Win, Linux, OSX
- Customizable! Just choose a package list (e.g. for lectures)

Coq Platform Charter by Michael Soegtrop
The release process

... 8.12 (coq) ... 8.13 (coq + platform) ... 8.14 (platform) ...

**user:** look at the platform scripts/installers

**library dev:** test against the platform

**platform package dev:** we will ask you “please tag”

**plugin dev:** put your plugin in Coq’s CI

**CEP#52 Release process for Coq 8.14 by Enrico Tassi**
Coq 8.14 Features

- Change of case representation:
  - more efficient and matching the user-level view
    (no more lambdas that can be reconstructed)
  - updated meta-theory proof in MetaCoq (SR, completeness)
- Primitive signed integers on top of the primitive unsigned ones
- Canonical Structures: allow \( \text{fun } _ => \) and \( \text{forall } x : A, B \) keys
- Ltac 2 APIs: printf, inspection of inductive type declarations, interoperability with Ltac 1
- coqnative for separate compilation of native libraries
- dune support (better upcoming dune 3.0 integration)
- Ltac debugger support in CoqIDE
Coq Future

- Rewrite rules (T. Winterhalter, CEP PR#50)
- Support for inductive-inductive types
- Deep “small-inversion” in pattern-matching compilation (H. Herbelin, T. Martinez, M. Lenon-Bertrand, J.-F. Monin)
- Sized typing in the kernel (PR #12426)?
- Eta-reduction and contravariant subtyping (H. Herbelin, M. Sozeau, CEP #47)
- Improved UI support (M. Dénès, E. Tassi, G. Gilbert, E J-G. Arias)
- Visual Ltac debugger (J. Fehrle, CEP PR #53)
- Website redesign (outsourced)
Development news

- New workers for our CI and now on gitlab’s OSS plan
- We got a bug minimizer integrated in CI by J. Gross
- coq-community project: https://github.com/coq-community
- Day-to-day communication: https://coq.zulipchat.com
- Discourse forum: https://coq.discourse.group
- Upcoming survey about the naming issue, user experience and general feedback from the community
- Coq Team webpage: https://coq.inria.fr/coq-team
Q & A Time!