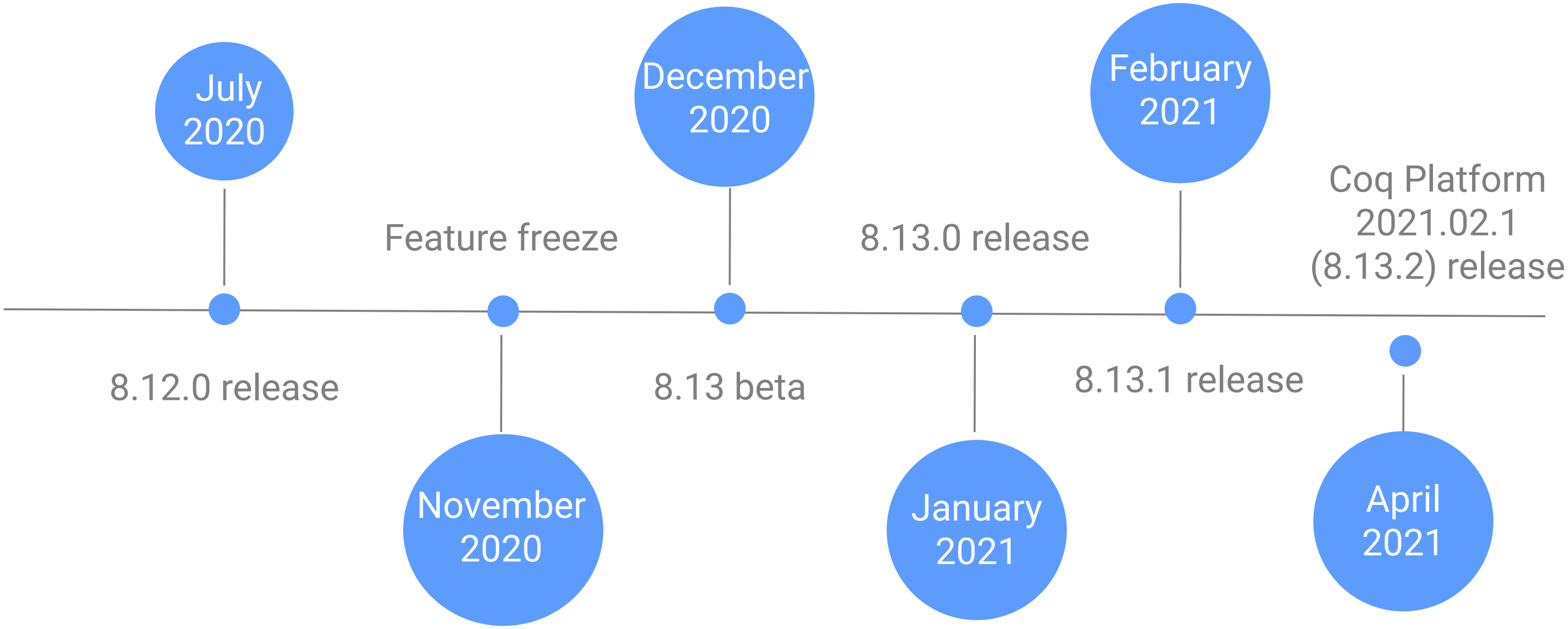
COQ DEVELOPMENT TEAM SESSION

Coq Development Team
Coq Workshop 2021
Online
July 2nd, 2021

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

December 2020

8.13 beta

January 2021

8.13.0 release

February 2021

8.13.1 release

April 2021

Coq Platform 2021.02.1 (8.13.2) release

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**
    - λ-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

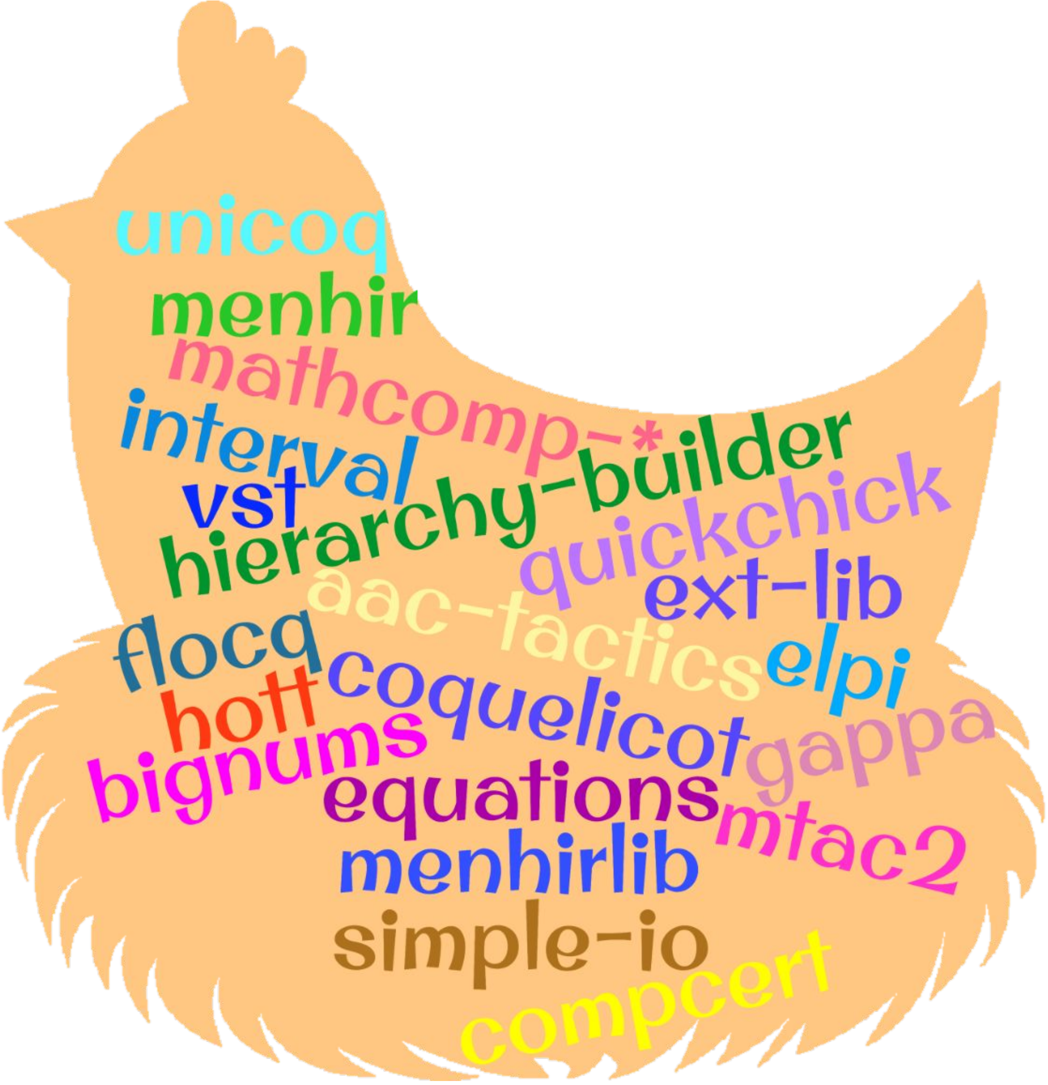
library dev: test against the platform

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 Platform 2021.02.1



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 (fun _ =>) and (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!