Status of Software Management

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CD Run II Computing Meeting
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Configuration Management Working Group
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Outline

- Overview of proposed system.
  - Software archive and version control with CVS.
  - Packages, releases & building with SoftRelTools.
  - Setup and distribution via UPS/UPD.
- Status of software management project.

Overview of Proposed System

- We are proposing a UNIX software management system for Run I and Run II, based on

  - ♦ Software version control with CVS ala SDSS.

    - Remote client/server CVS with cvs account on server machine using cvsh shell.
    - Uniform access mechanism and control of both read and write access on user-by-user basis.

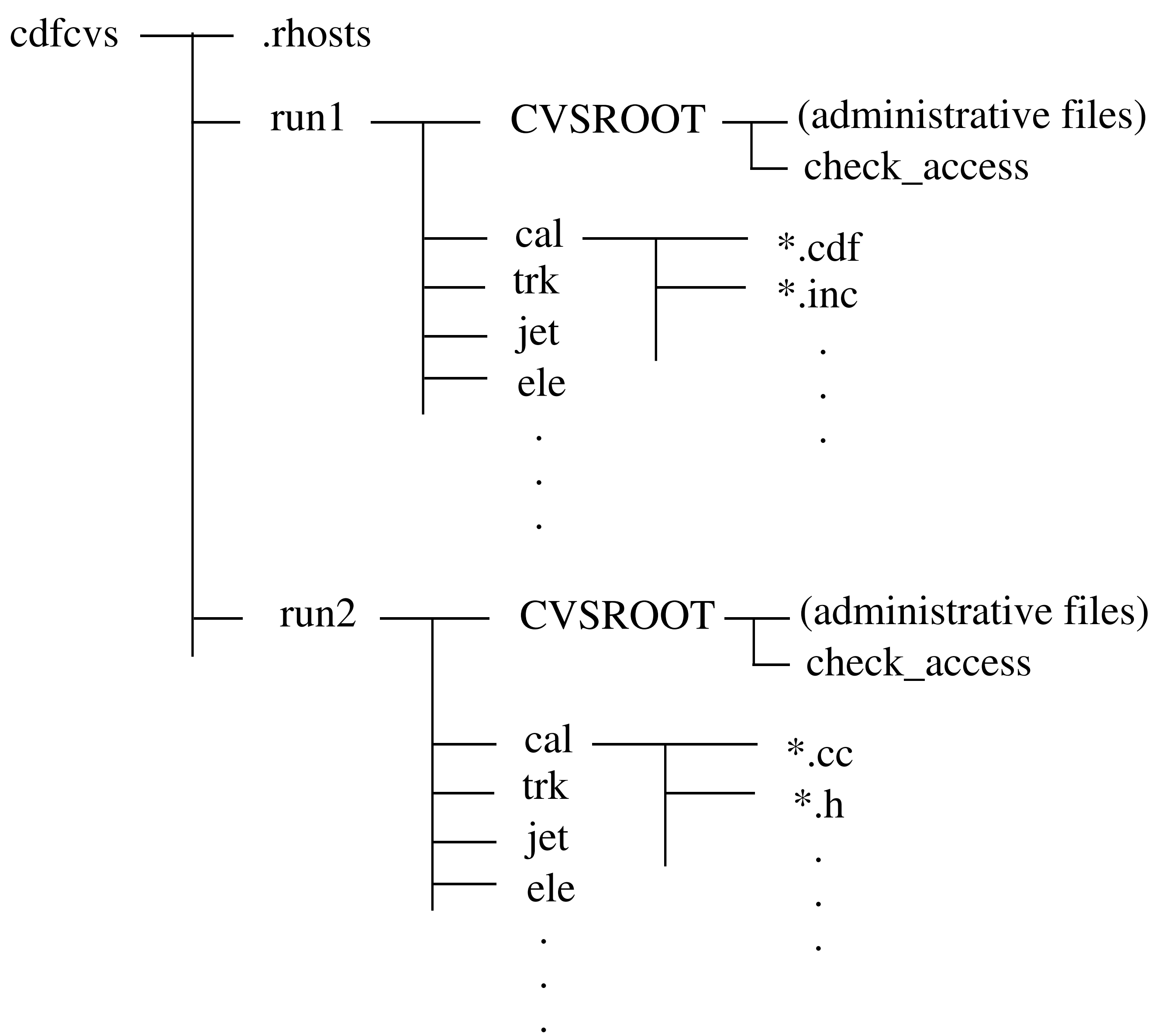
  - ♦ Packages, releases & building with SoftRelTools.

    - Developed by BaBar, allows aynchronous development of packages linked into releases.
    - Releases tree is soft-linked to package tree.
    - SoftRelTools for creating trees, links, versions.
    - GNUmakefiles provided for building.
    - Uses cpp to makes dependencies (*.d files).

  - ♦ Distribution via SoftRelTools/CVS and UPD.

    - CVS called by SoftRelTools distributes code for development purposes.
    - UPD distributes code and binaries of official releases.

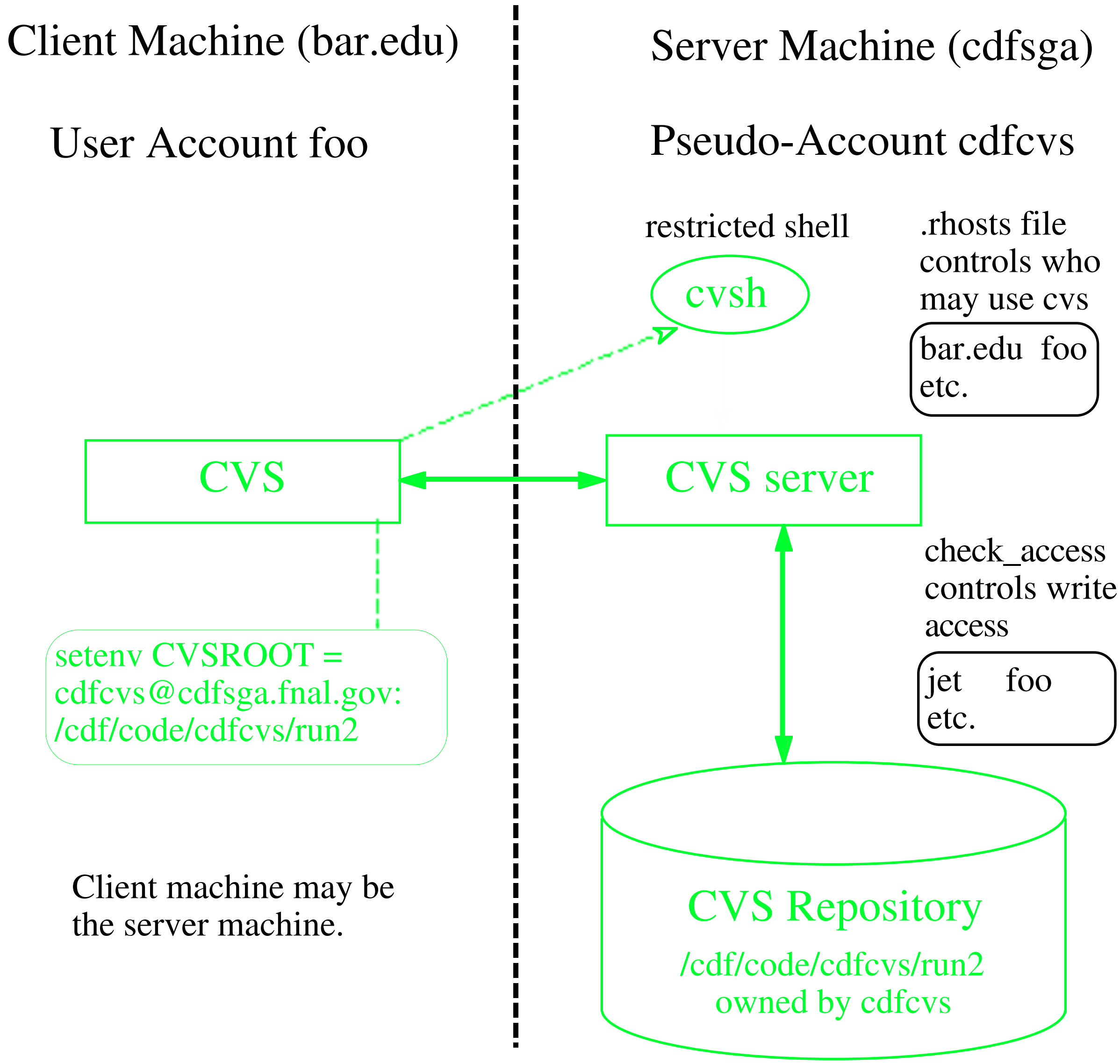
Proposed CVS Repositories (CDF)



.rhosts files lists who can access repositories.

check_access lists who can modify a module (package).

CVS in Client-Server Configuration



User foo at remote institution bar.edu is able to get any code in the repository, and has privilege to modify the jet package.

The Sloan Digital Sky Survey has used CVS configured this way for the last two years.

Software ReleaseTools

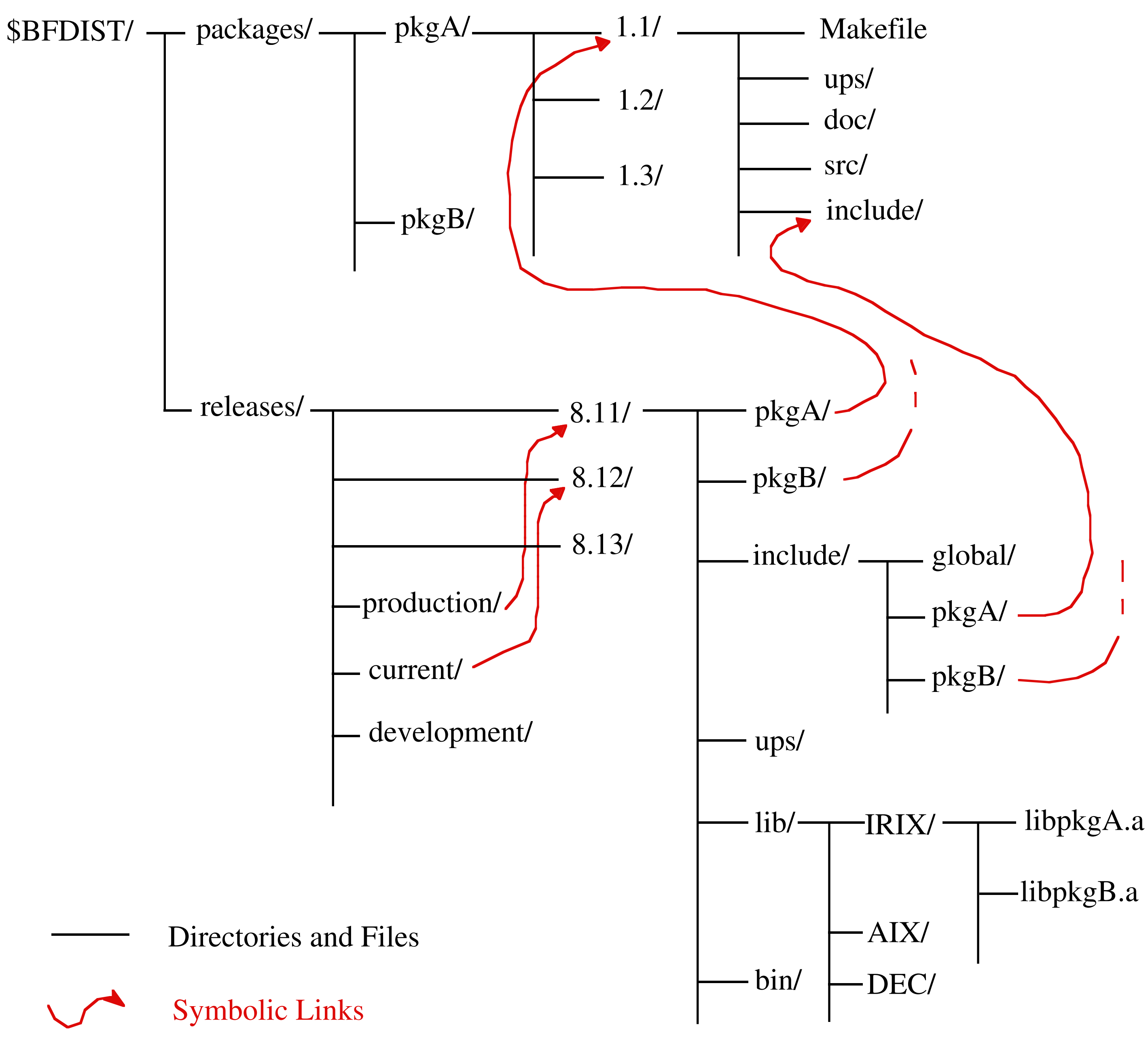
- ♦ BaBar has designed a release and package directory structure that allows asynchronous development of multiple packages.Package versions are grouped into complete releases using symbolic links. See figure.

- ♦ BaBar has developed tools for working with packages and releases. These commands can be used by software developers, librarians and managers.

  - newrel
    - -p Create a production release from a list of package version numbers input by the user (manager).
    - -t Create a test release in the users area for developing code.
  - addpkg Checkout a package from CVS and add it to the test release for developing code.
  - newver Put a tagged version of a package in the official package area.

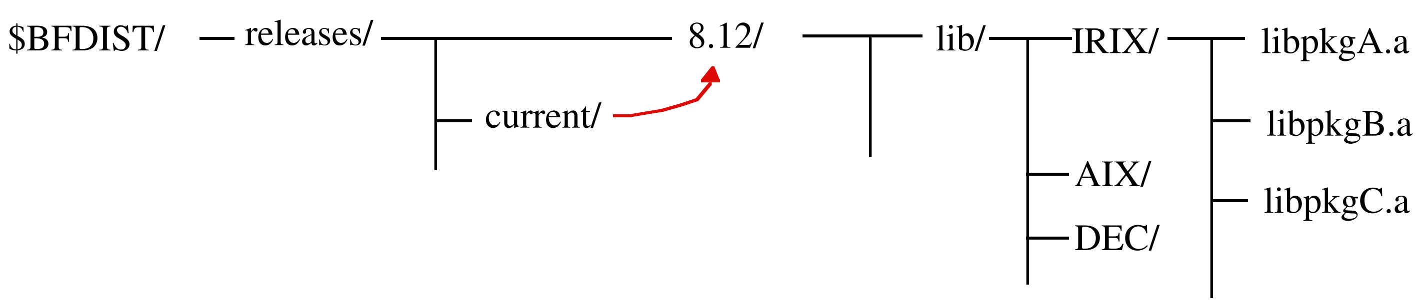
- ♦ BaBar has developed standard makefiles for building libraries and executables on multiple platforms. cpp used to create dependency files, GNU Make to build.

Package and Release Directory Structure

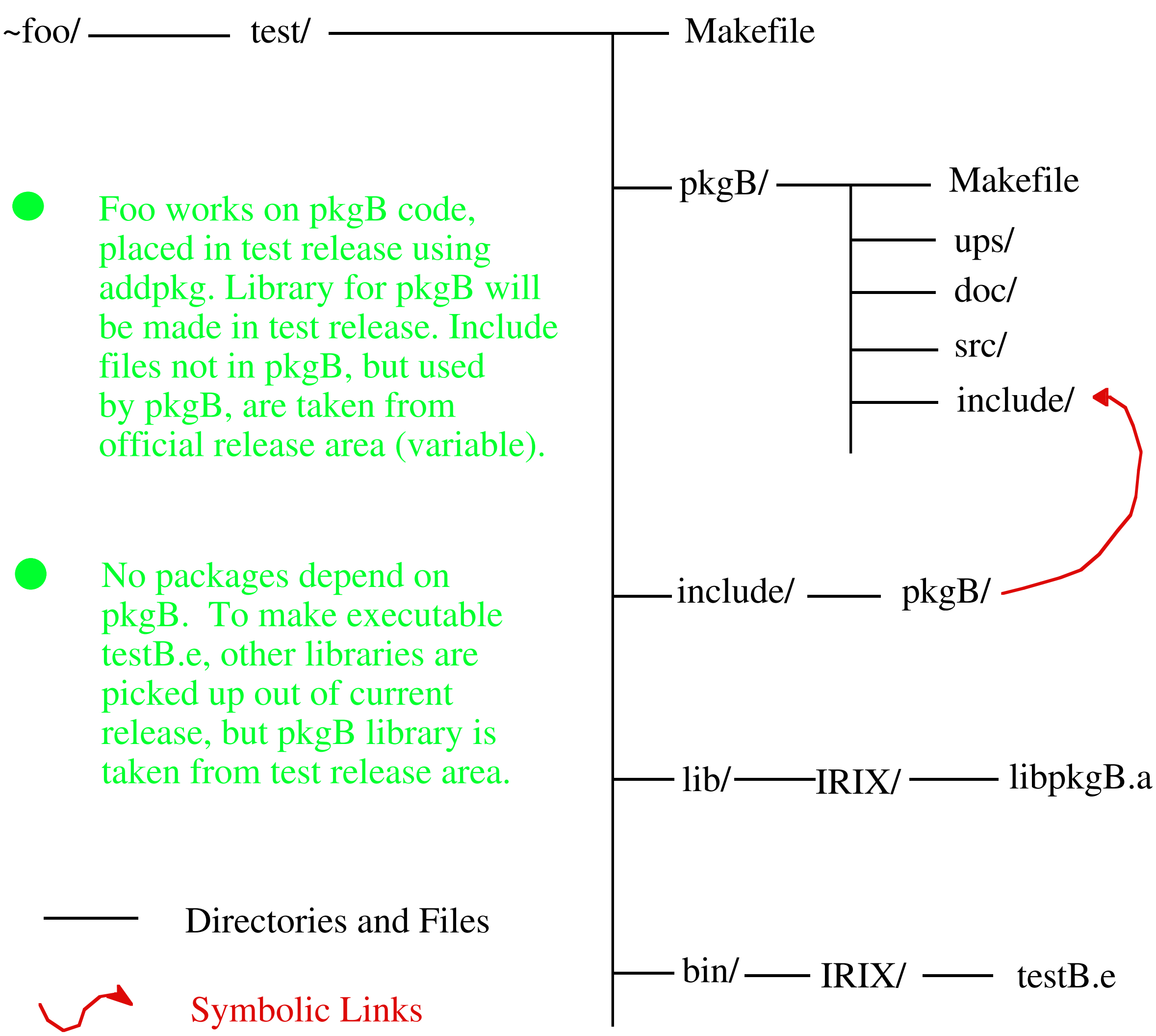


Simple Test Release Directory Structure

Official



Test

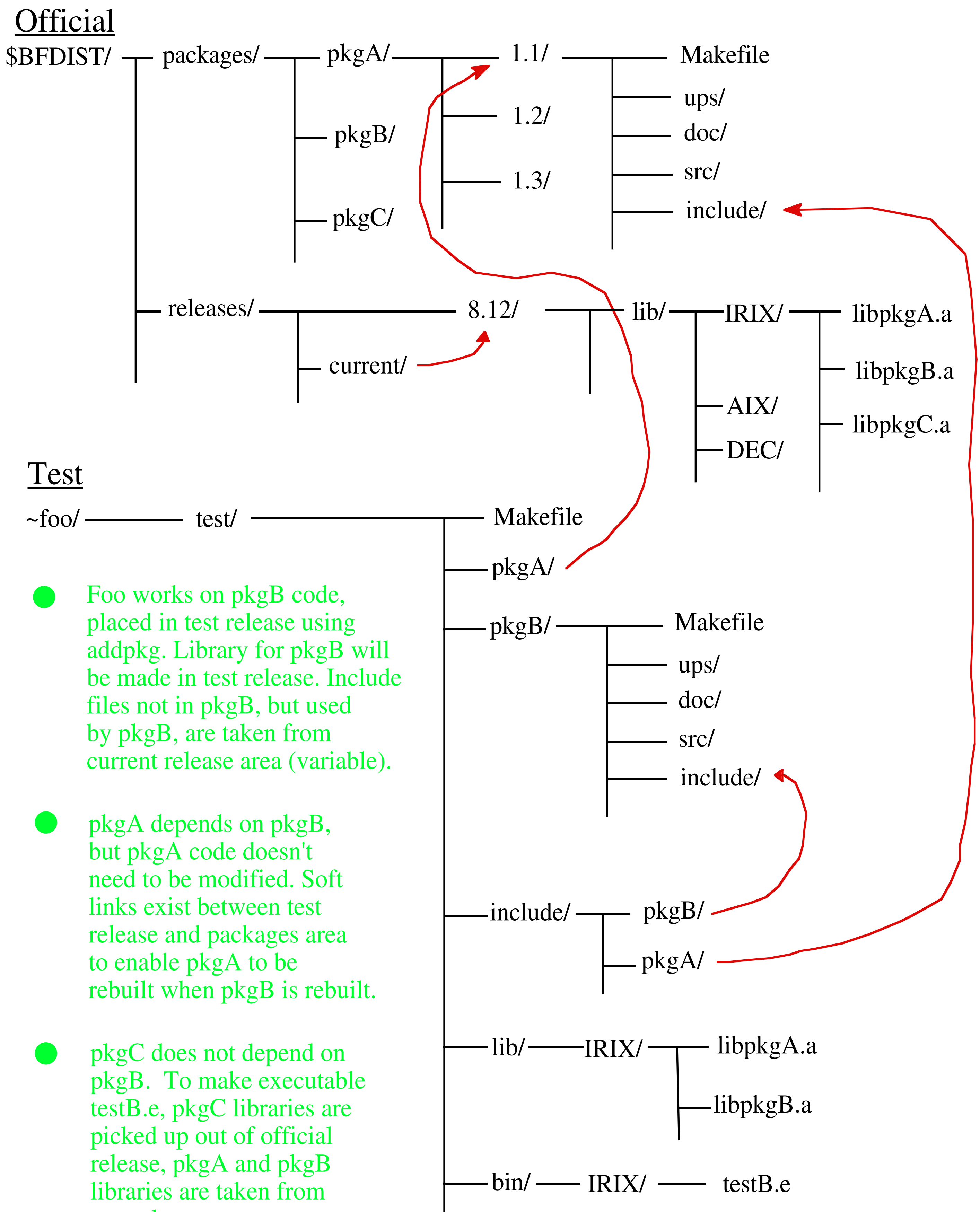


- Foo works on pkgB code, placed in test release using addpkg. Library for pkgB will be made in test release. Include files not in pkgB, but used by pkgB, are taken from official release area (variable).

- No packages depend on pkgB. To make executable testB.e, other libraries are picked up out of current release, but pkgB library is taken from test release area.

Foo uses BaBar tools newrel, addpkg and the BaBar main Makefile to build a test release containing Foo's modifications to package B.

More Complex Test Release Directory Structure



- Foo works on pkgB code, placed in test release using addpkg. Library for pkgB will be made in test release. Include files not in pkgB, but used by pkgB, are taken from current release area (variable).
- pkgA depends on pkgB, but pkgA code doesn't need to be modified. Soft links exist between test release and packages area to enable pkgA to be rebuilt when pkgB is rebuilt.
- pkgC does not depend on pkgB. To make executable testB.e, pkgC libraries are picked up out of official release, pkgA and pkgB libraries are taken from test release area.

Status of Software Management

- Software Version Control: CVS stuff works.
  - ♦ CVS commands work in D0 & CDF test repositories.
  - ♦ UAS group supports CVS & CVSH product.
  - ♦ M. Mengel in charge, assisted by Chih-Hao Huang.
  - ♦ Has installed modifications to CVS and CVSH.
  - ♦ CVS-SUPPORT mailing list created.

- Packages and Releases: SoftRelTools mostly checked.
  - ♦ SoftRelTools on cdfsga thanks to Flavia Donno.
  - ♦ Critical commands tested (newrel, addpkg, newver)
  - ♦ Glen Cooper, Liz Sexton & I are testing makefiles.
  - ♦ Used tools & makefiles to rebuild trybos package, including dependency generation using CPP.
  - ♦ Used tools & makefiles to build a release containing modified BaBar packages and trybos.
  - ♦ Experiment flag added for changes to makefile.
  - ♦ Need to test on Run 1 libraries in FORTRAN.

- UPS and UPD enhancements will be done by OLS. See Liz Sexton's talk.

- Documentation: I am writing a complete document.
  - ♦ Overview of system, users guide for pedestrians.