An EPICS IDE Using Eclipse

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Presented at the EPICS Collaboration Meeting

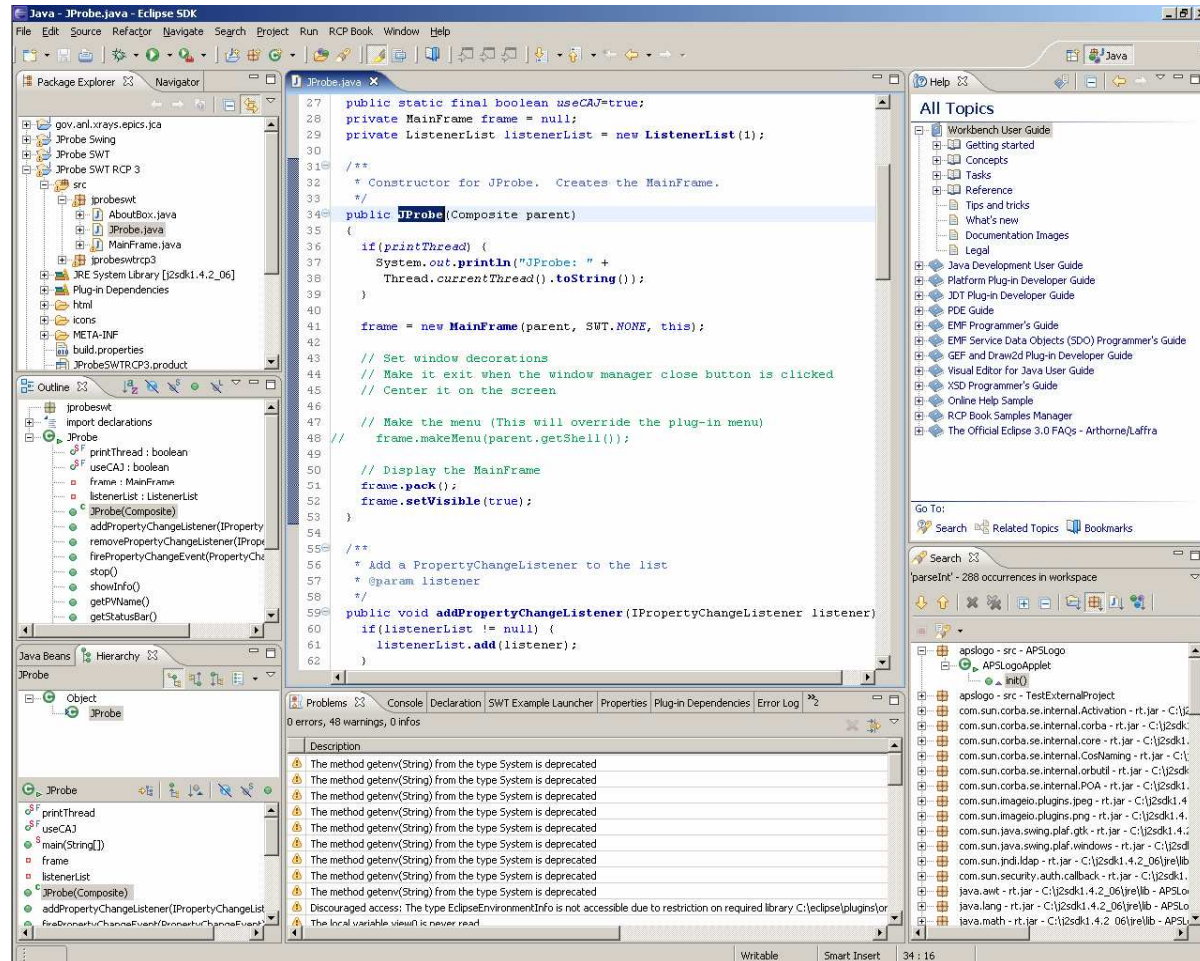*June 15, 2006*

Argonne National Laboratory, Argonne, IL

Topics

- Eclipse
- CDT Plug-in (C/C++)
- CVS
- Wind River Workbench
- EPICS IDE Plug-in

The Eclipse IDE
Out of the Box

EPICS Development in Eclipse
Overview

- The C/C++ Development Tools (CDT) plug-in supplies most of what you need
    - Is comparable to Java Development Tools (JDT) but for C/C++
    - It supports C/C++ Standard Make
        - *EPICS builds via Make*
        - *That's all you need*
- The Eclipse Team support may be useful if you use CVS for EPICS
- The Wind River Workbench is available for device software
- The EPICS IDE Plug-in is designed for new and casual users
    - Provides New Project and New Application Wizards
        - *Based on EPICS MakeBaseApp*
    - You can have an IOC up and running with a few mouse clicks and a little typing
    - Will (sometime) provide adding and configuring support modules, etc.

CDT
Necessary Ingredient

- C development Tools
  - It does not come with Eclipse
  - You have to download and install the plug-in
- Primarily it runs Make
  - You supply the Make
  - Can be C/C++ Standard Make (Just runs Make on your Makefile)
  - Or C/C++ Managed Make (Decides what needs to be built)
- Editor
  - Has content assist, syntax highlighting, other modern features
  - Does not have a good indentation engine, customization
  - Far less developed than the JDT Java editor
  - You probably want to turn off Build Automatically
- Should work on all the major platforms

IOC Development using Eclipse
A Convenient Way to Organize Your Work

- APS Front-End IOCs in Eclipse, as checked out from CVS
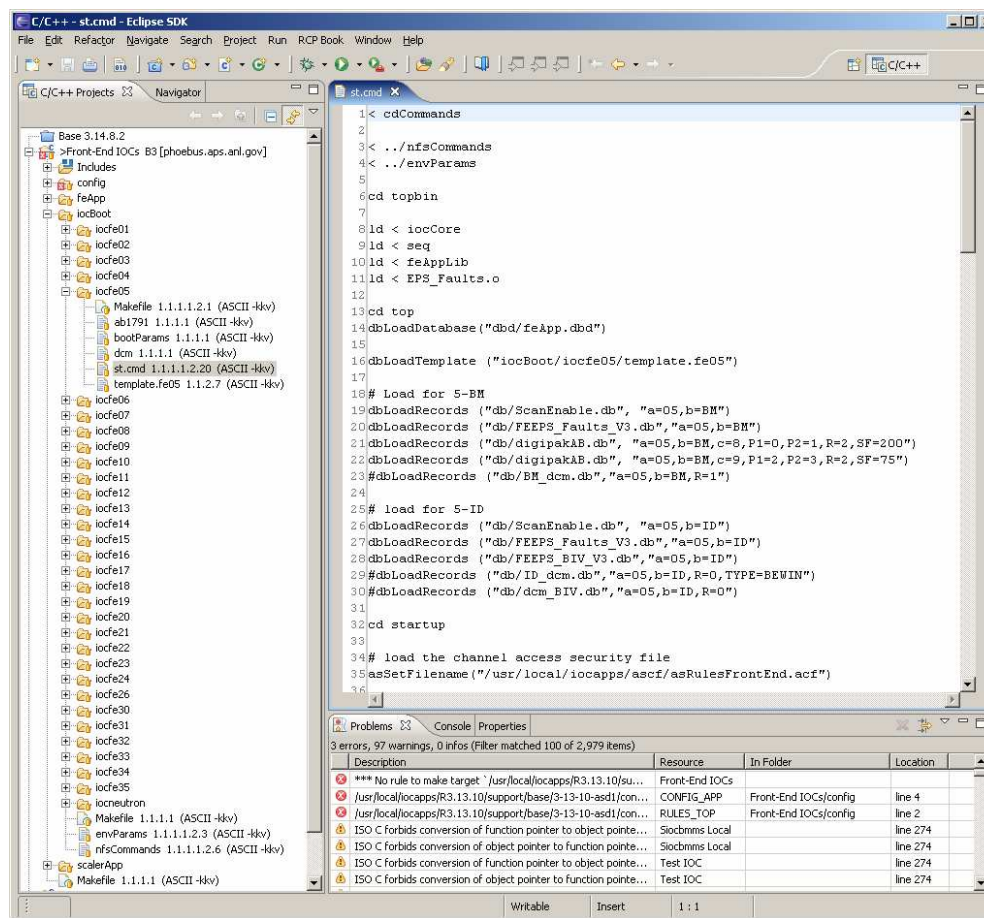
Managing an IOC on Several Platforms Including VxWorks

■ You can build on the platform you are on and cross compile

■ This IOC was built

  – On Windows

    • *cygwin-x86*

    • *vxWorks-68040*

  – On Solaris

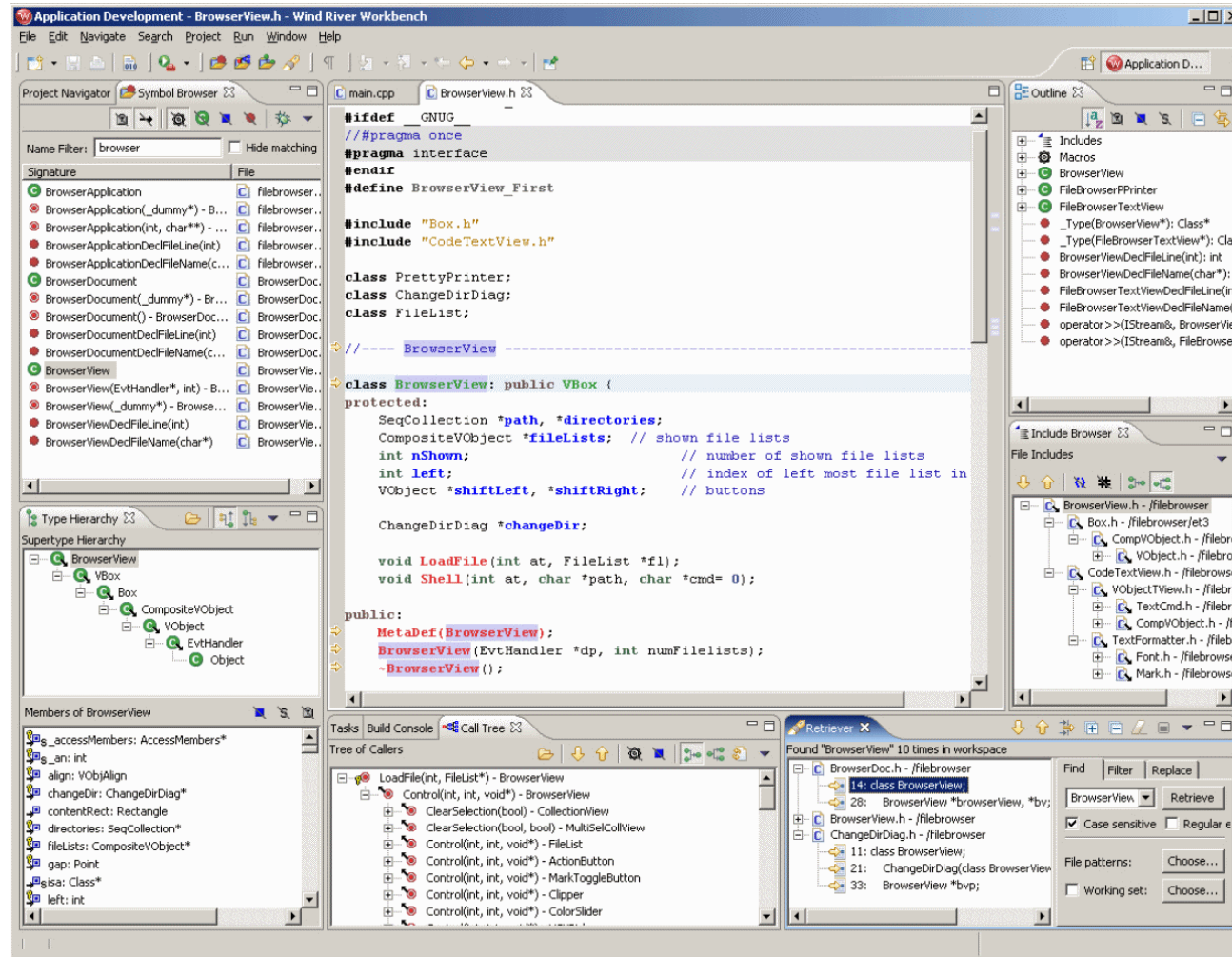   • *solaris-sparc*

      (outside Eclipse)

Eclipse Team Support
CVS via GUI

- There is also a Subversion plug-in
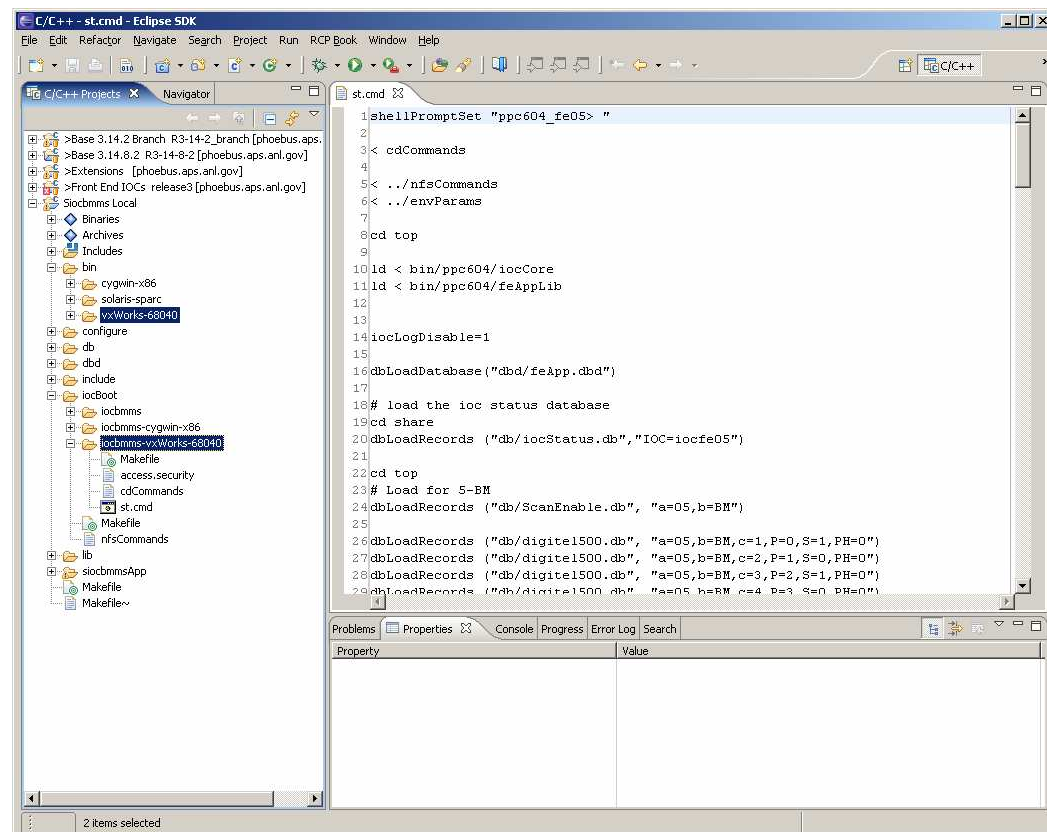
Wind River Workbench
Extensive Features For Devices

EPICS IDE Plug-in

- Designed to make it simple to manage IOCs
  - Especially for new and inexperienced IOC managers
  - Or those that have other responsibilities
  - Aim is to provide Wizards to ease and speed development
- Most of the work is done by CDT and the EPICS build system
- The EPICS IDE has its own nature plus C/C++ natures
  - Thus it has all the features of a C/C++ project and more of its own
- Relies on EPICS MakeBaseApp to create new projects and applications
- Is not limited to IOCs
  - Will also do applications
  - Actually, anything with a template MakeBaseApp understands
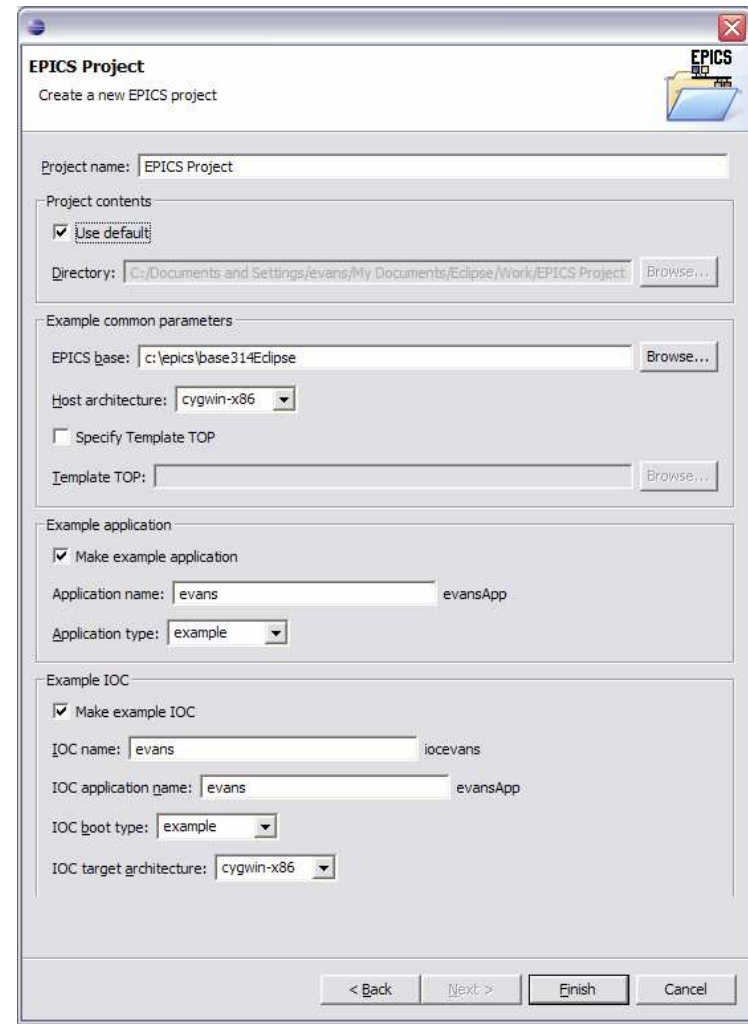
Wizards Appear Along with Other Eclipse Wizards
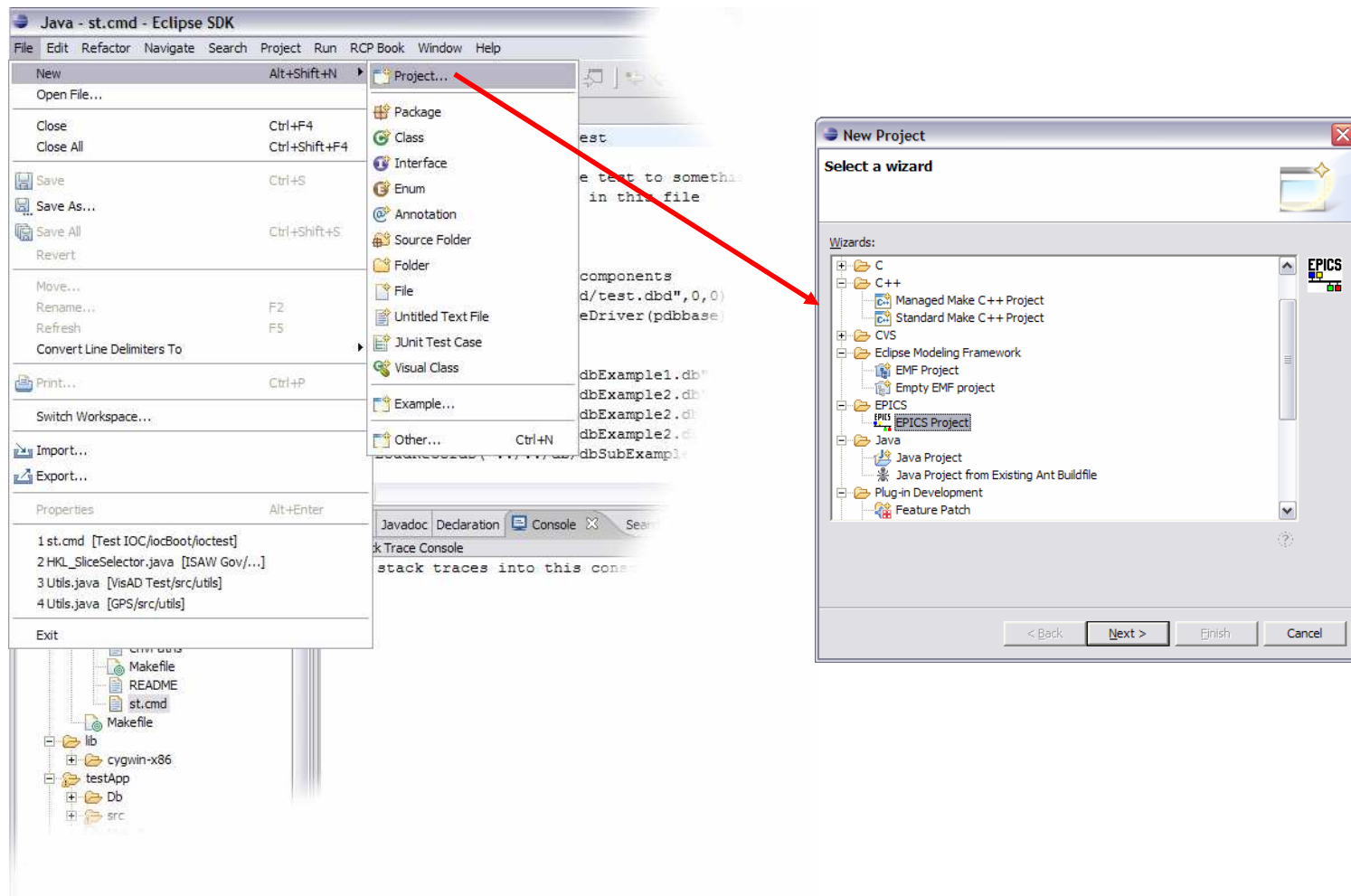
EPICS IDE
New Project Wizard

- You can make an empty EPICS project or a project based on a template
  - Example application (xxxApp)
  - Example IOC (iocyyy)
- If examples are selected, you specify:
  - EPICS base
  - Target architecture (HOST_ARCH)
  - Names and other parameters
- Choose from available types and architectures
- Dialog is populated from
  - MakeBaseApp
  - Looking at what is built in base
- Dialog checks responses are valid

Result of New Project Wizard
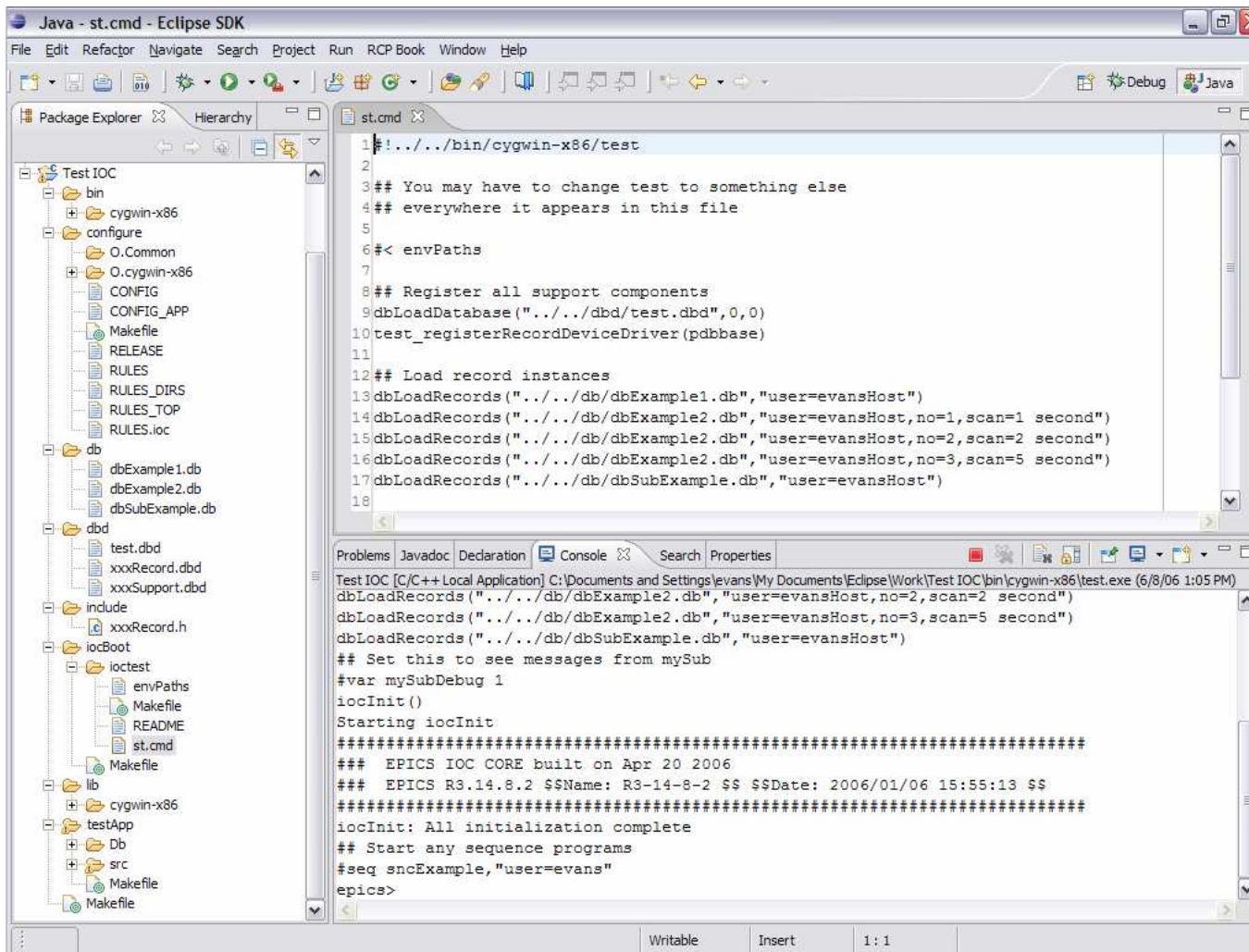
EPICS IDE
New Application Wizard

- Add to the project via the New menu on a selected project, folder, file, etc.
  - *e.g.* add an IOC
- Dialog is populated from
  - Project properties
  - MakeBaseApp
  - Looking at available builds

EPICS IDE
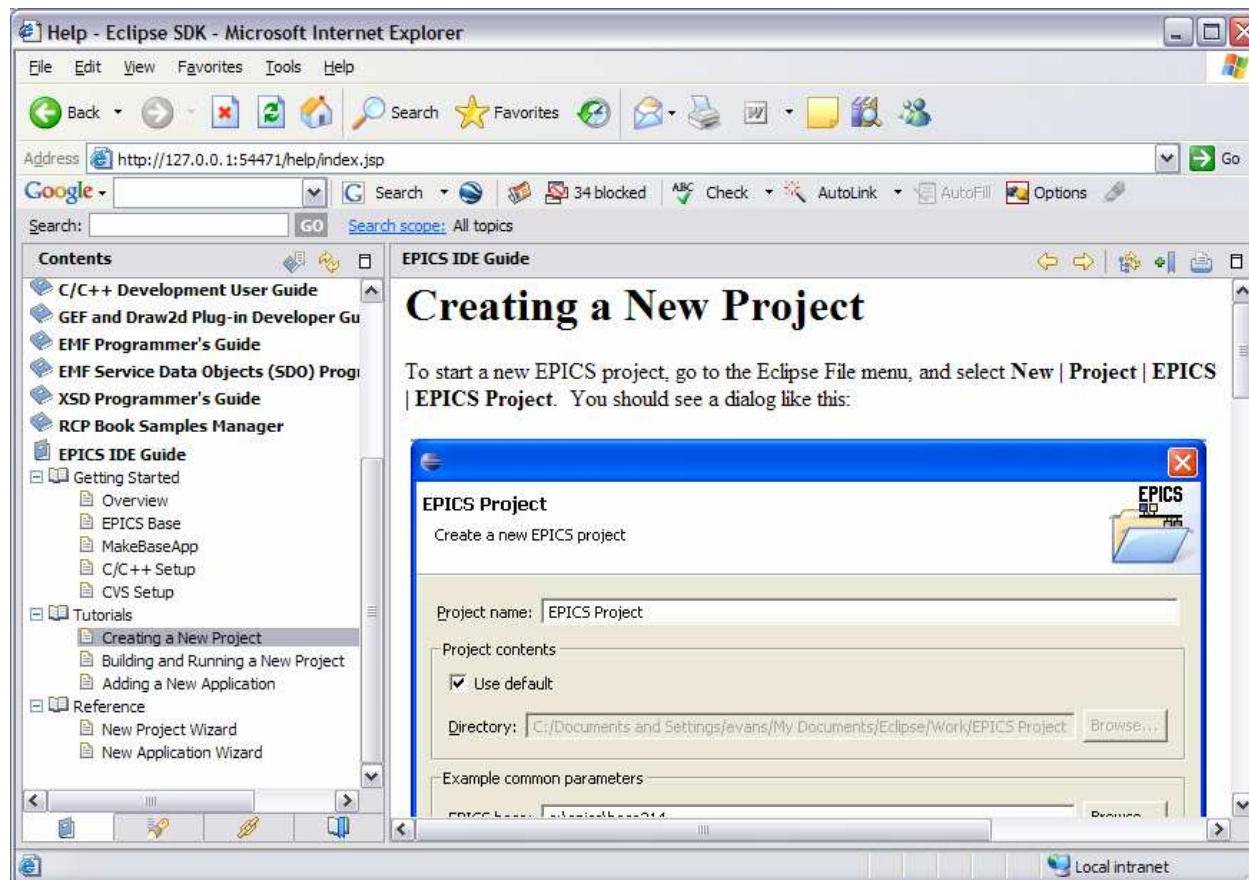## Preferences and Properties

- **Preferences exist to set defaults**
  - Window | Preferences | EPICS IDE
- **Properties are set for a project**
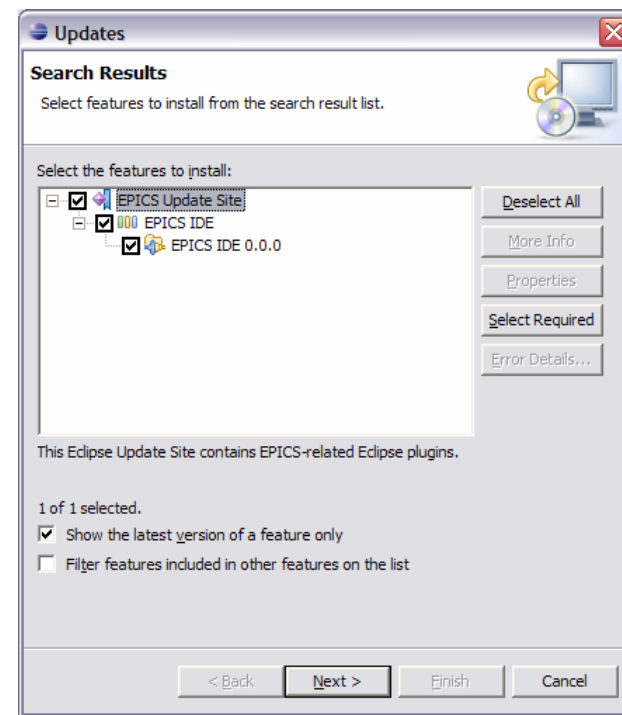 - By the New Project Wizard or by the user
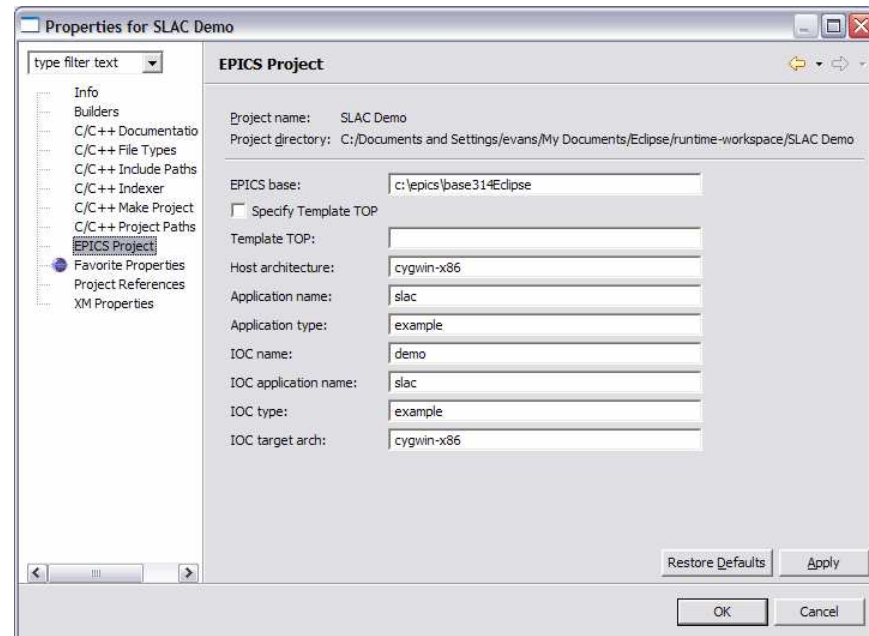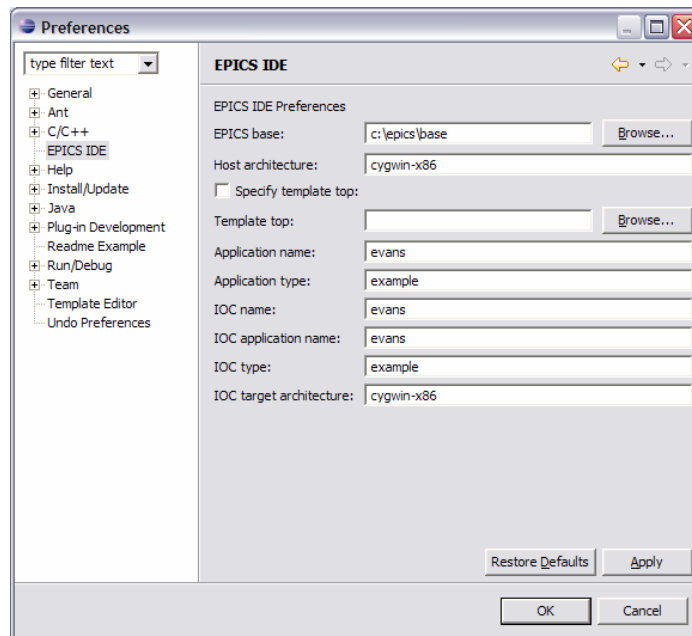
EPICS IDE
Help

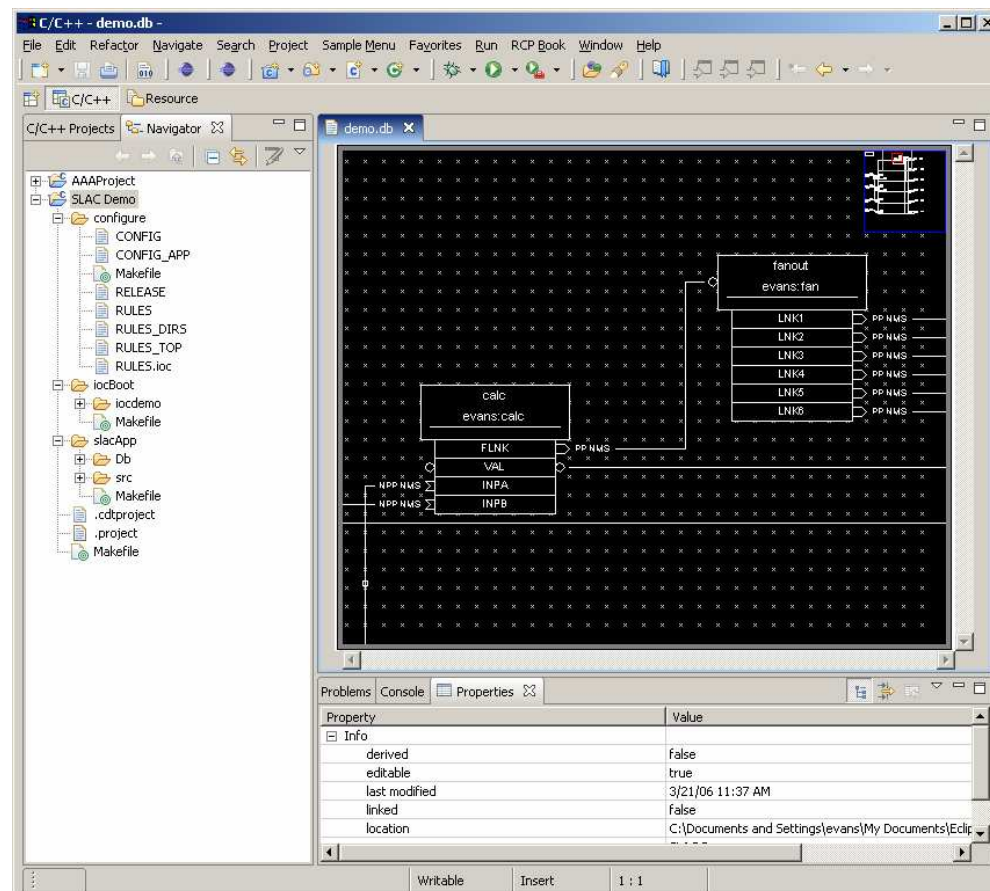■ **Help is implemented as separate plug-in (gov.anl.epics.ide.help)**

EPICS IDE
Feature

- Is implemented as a Feature with an Update Site
  - http://www.aps.anl.gov/epics/eclipse/updates
- Web page is at
  - http://aps.anl.gov/epics/eclipse/plugins/epicsIde/epicsIde.html

VisualDCT in Eclipse

- **This picture came from Photoshop, not Eclipse**
  - But it can be done

Thank You

This has been an

APS Controls Presentation