

## *An EPICS IDE Using Eclipse*

*Kenneth Evans, Jr.*

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*Argonne National Laboratory, Argonne, IL*



*A U.S. Department of Energy laboratory  
managed by The University of Chicago*



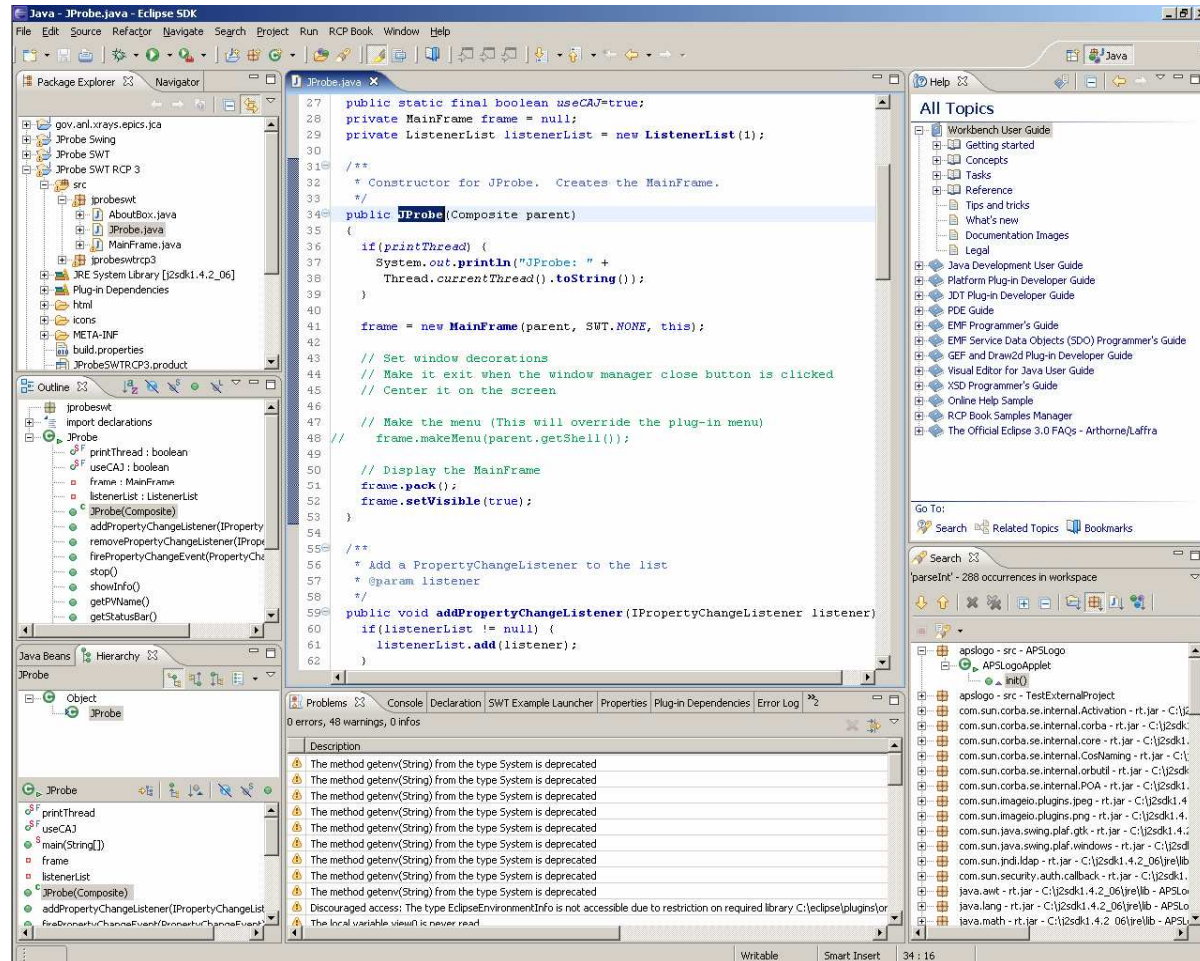
## *Topics*

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- 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

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- 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*

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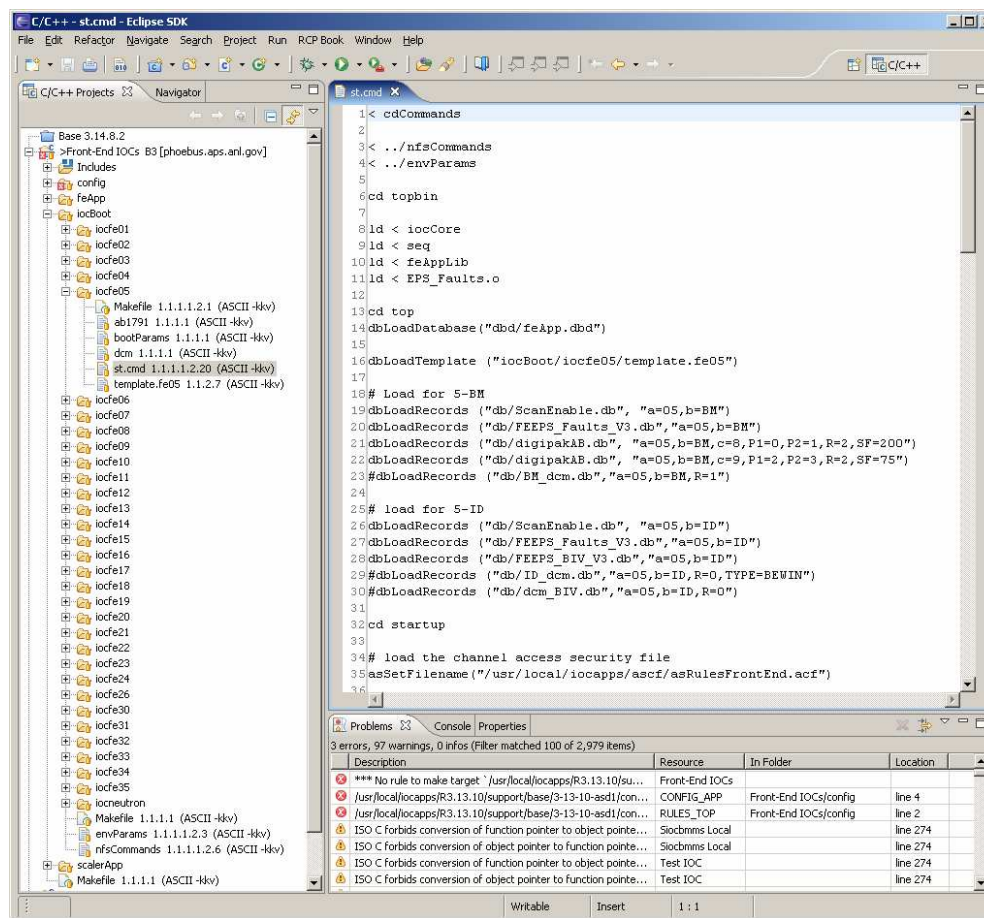
- C development Tools
  - It does not come with Eclipse
  - You have to download and install the plug-in
- Primarily it runs Make
  - You supply the Make
  - Can be C/C++ Standard Make (Just runs Make on your Makefile)
  - Or C/C++ Managed Make (Decides what needs to be built)
- Editor
  - Has content 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

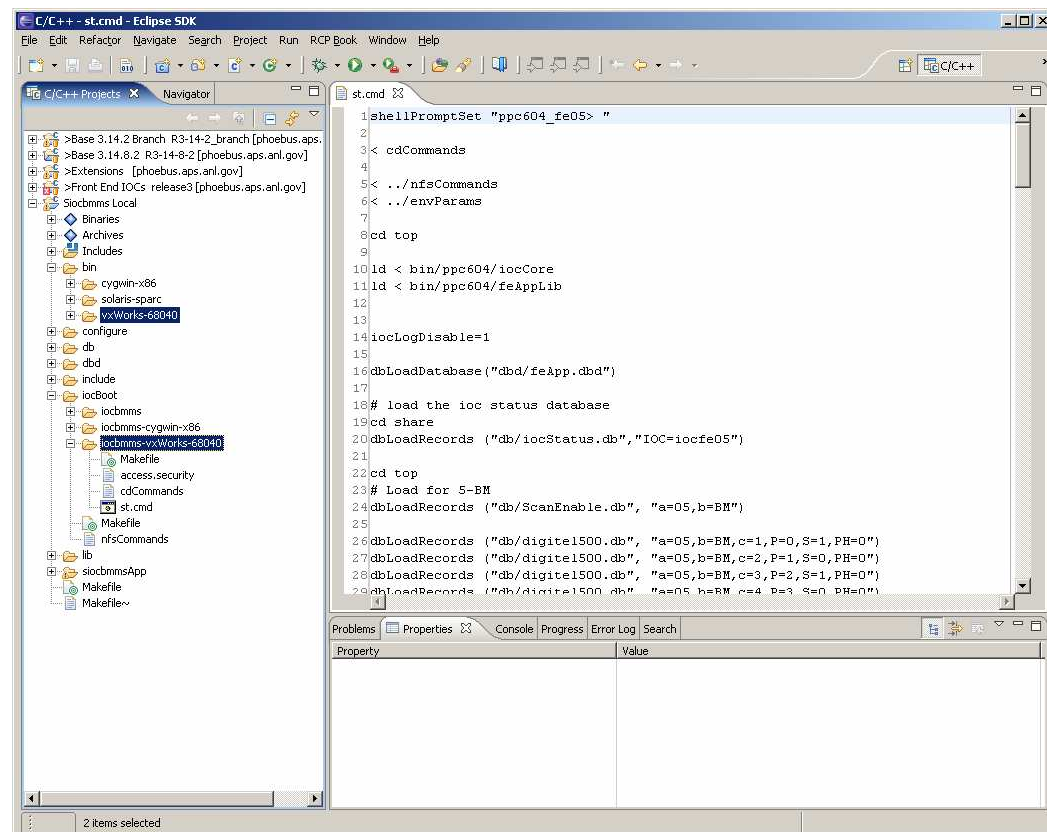
## A Convenient Way to Organize Your Work

- 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)





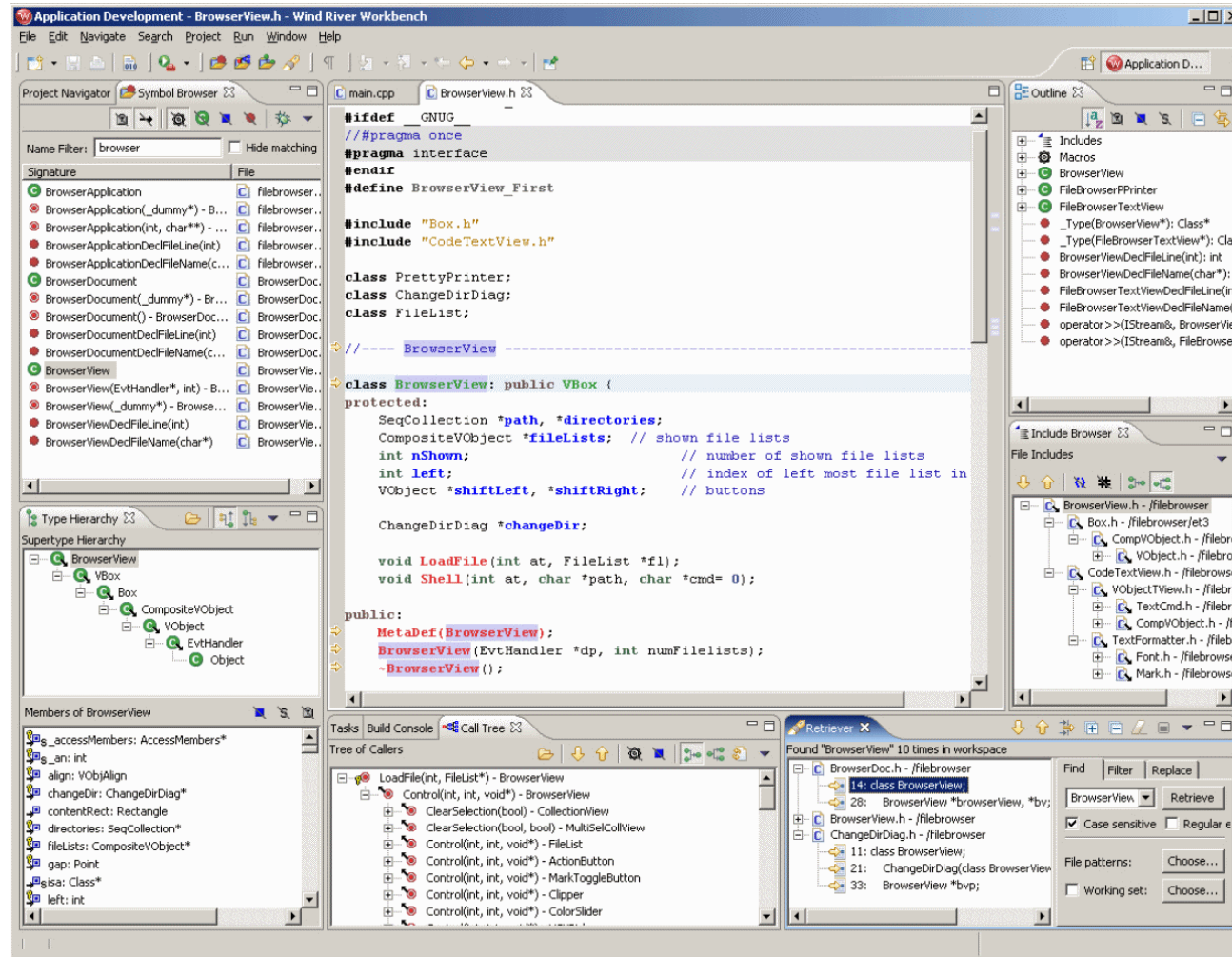


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# Wind River Workbench

## Extensive Features For Devices





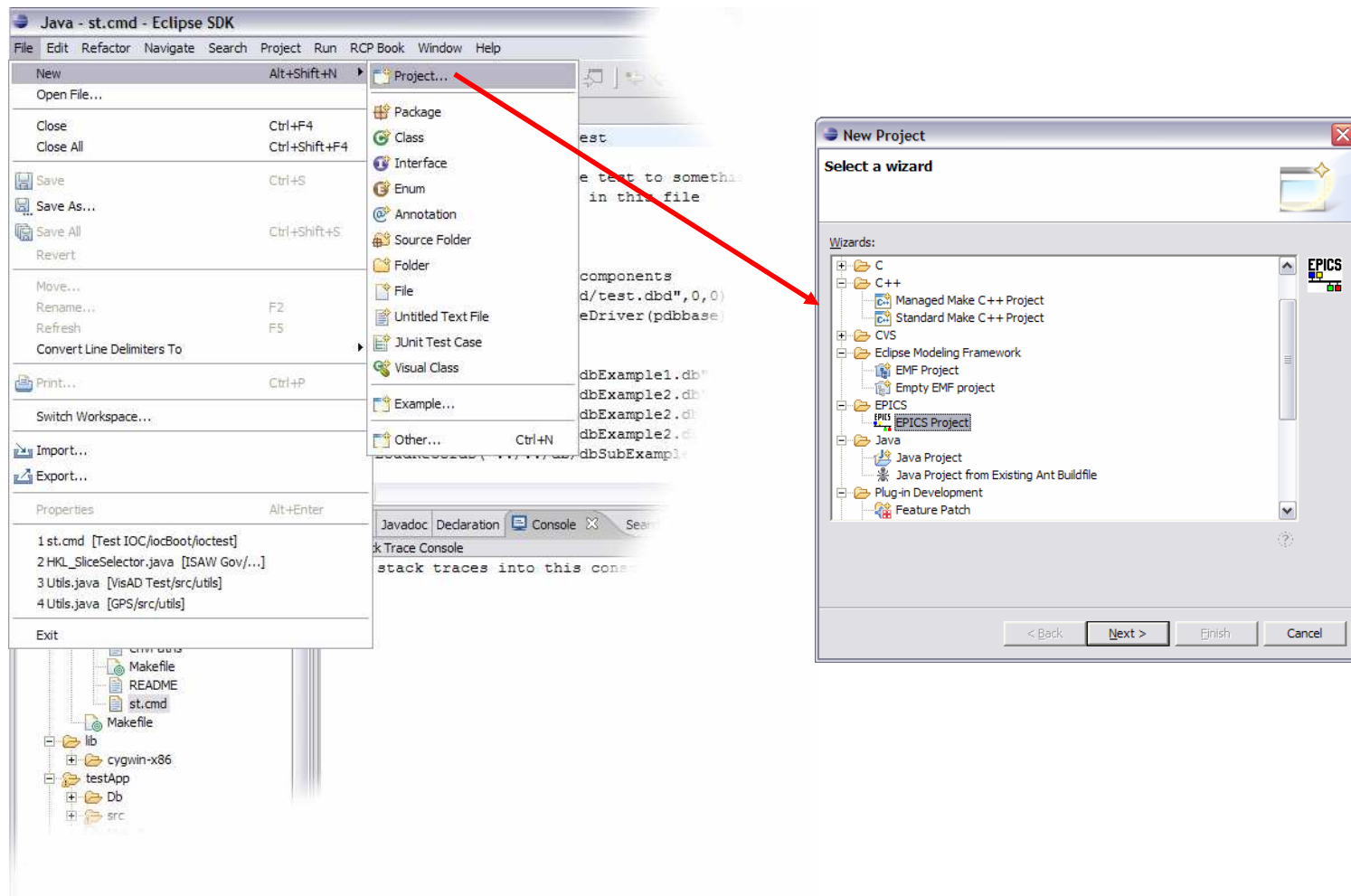
## *EPICS IDE Plug-in*

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- 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



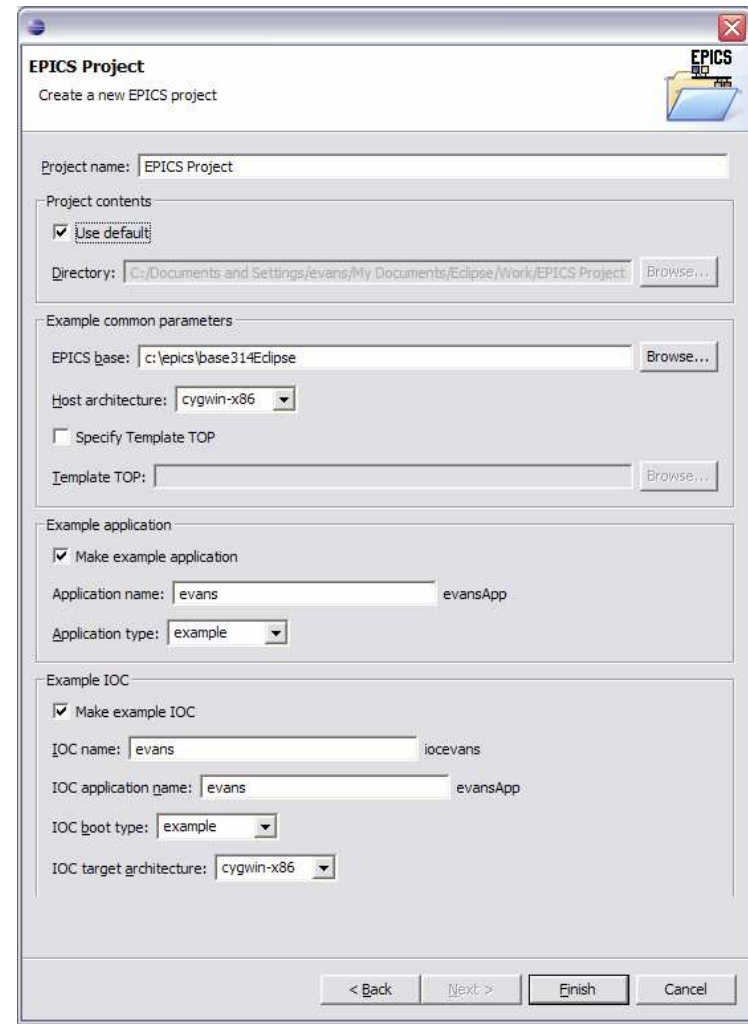
## Wizards Appear Along with Other Eclipse Wizards



## 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



The screenshot shows the 'EPICS Project' wizard dialog box. It has a title bar with a close button. The main area is titled 'EPICS Project' and 'Create a new EPICS project'. It contains several sections with input fields and checkboxes. The 'Project contents' section has a checked 'Use default' checkbox and a 'Directory' field with a 'Browse...' button. The 'Example common parameters' section has an 'EPICS base' field with a 'Browse...' button, a 'Host architecture' dropdown set to 'cygwin-x86', an unchecked 'Specify Template TOP' checkbox, and a 'Template TOP' field with a 'Browse...' button. The 'Example application' section has a checked 'Make example application' checkbox, an 'Application name' field with 'evans' and a suffix 'evansApp', and an 'Application type' dropdown set to 'example'. The 'Example IOC' section has a checked 'Make example IOC' checkbox, an 'IOC name' field with 'evans' and a suffix 'iocevans', an 'IOC application name' field with 'evans' and a suffix 'evansApp', an 'IOC boot type' dropdown set to 'example', and an 'IOC target architecture' dropdown set to 'cygwin-x86'. At the bottom are buttons for '< Back', 'Next >', 'Finish', and 'Cancel'.

EPICS Project  
Create a new EPICS project

Project name: EPICS Project

Project contents  
☒ Use default  
Directory: C:\Documents and Settings\evans\My Documents\Eclipse\Work\EPICS Project Browse...

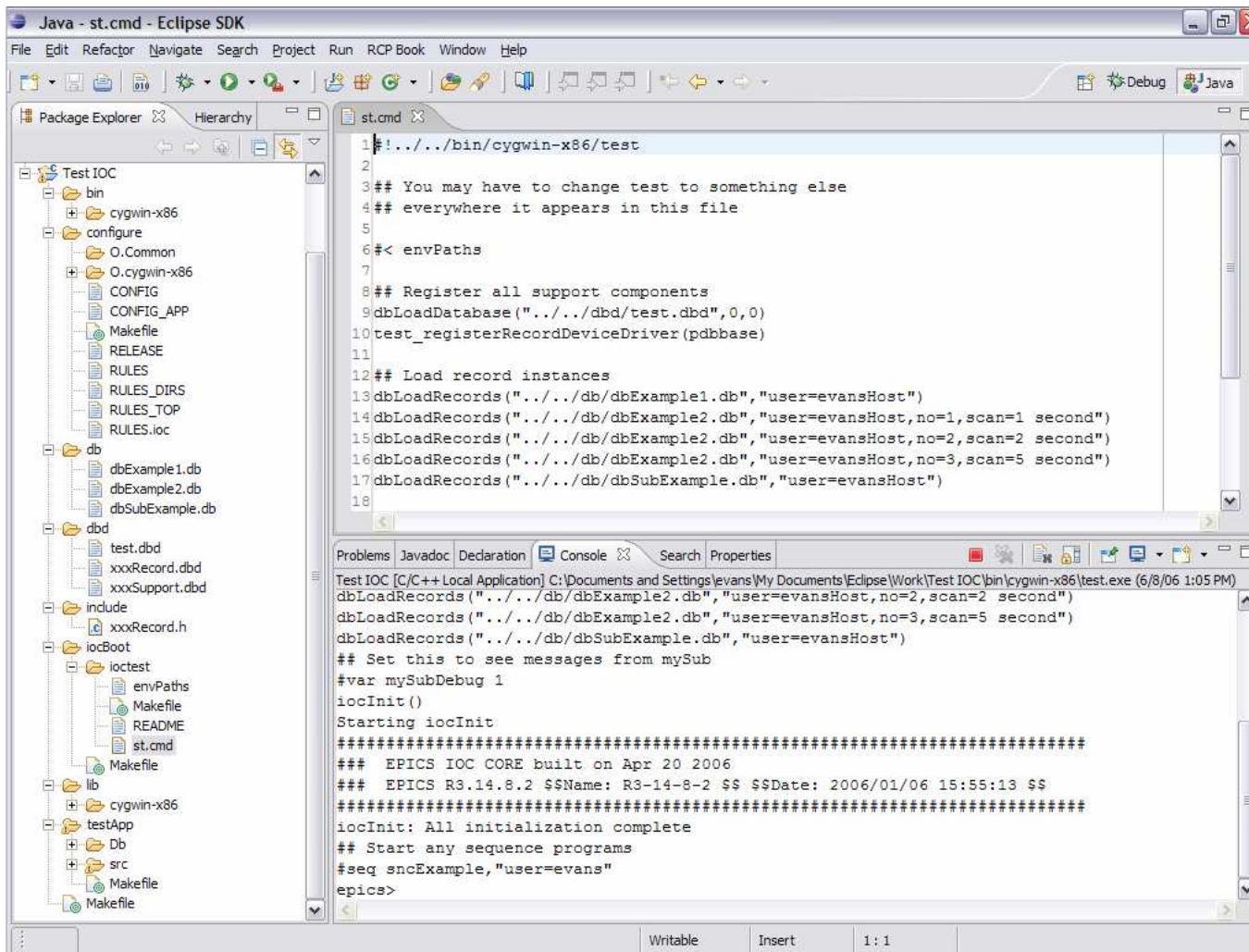
Example common parameters  
EPICS base: c:\epics\base314Eclipse Browse...  
Host architecture: cygwin-x86  
☐ Specify Template TOP  
Template TOP: Browse...

Example application  
☒ Make example application  
Application name: evans evansApp  
Application type: example

Example IOC  
☒ Make example IOC  
IOC name: evans iocevans  
IOC application name: evans evansApp  
IOC boot type: example  
IOC target architecture: cygwin-x86

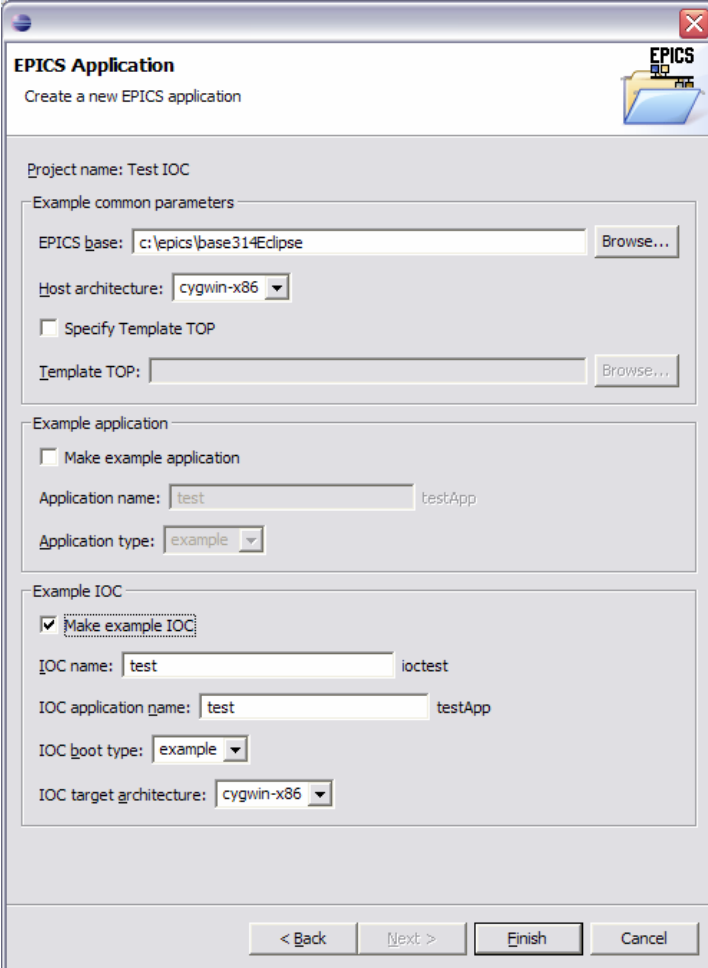
< Back Next > Finish Cancel

## 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



The screenshot shows the 'EPICS Application' wizard dialog box. It has a title bar with a close button. The main title is 'EPICS Application' with a subtitle 'Create a new EPICS application'. There is an EPICS logo in the top right corner. The dialog is divided into several sections: 'Project name' with a text field containing 'Test IOC'; 'Example common parameters' with fields for 'EPICS base' (c:\epics\base314Eclipse), 'Host architecture' (cygwin-x86), and 'Template TOP'; 'Example application' with a checkbox for 'Make example application', 'Application name' (test), and 'Application type' (example); and 'Example IOC' with a checked checkbox for 'Make example IOC', 'IOC name' (test), 'IOC application name' (test), 'IOC boot type' (example), and 'IOC target architecture' (cygwin-x86). At the bottom are buttons for '< Back', 'Next >', 'Finish', and 'Cancel'.

EPICS Application  
Create a new EPICS application

Project name: Test IOC

Example common parameters

EPICS base: c:\epics\base314Eclipse Browse...

Host architecture: cygwin-x86

☐ Specify Template TOP

Template TOP: Browse...

Example application

☐ Make example application

Application name: test testApp

Application type: example

Example IOC

☒ Make example IOC

IOC name: test ioctest

IOC application name: test testApp

IOC boot type: example

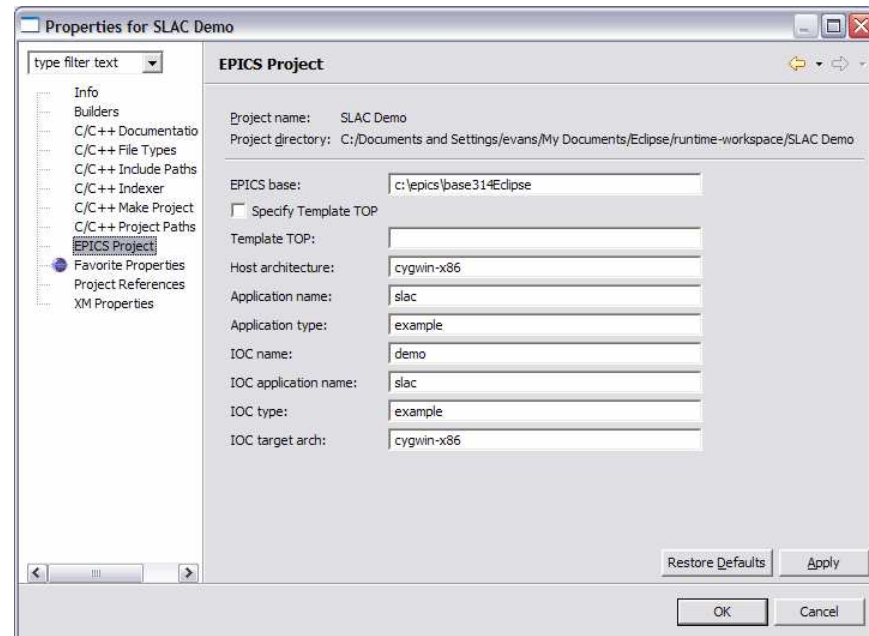
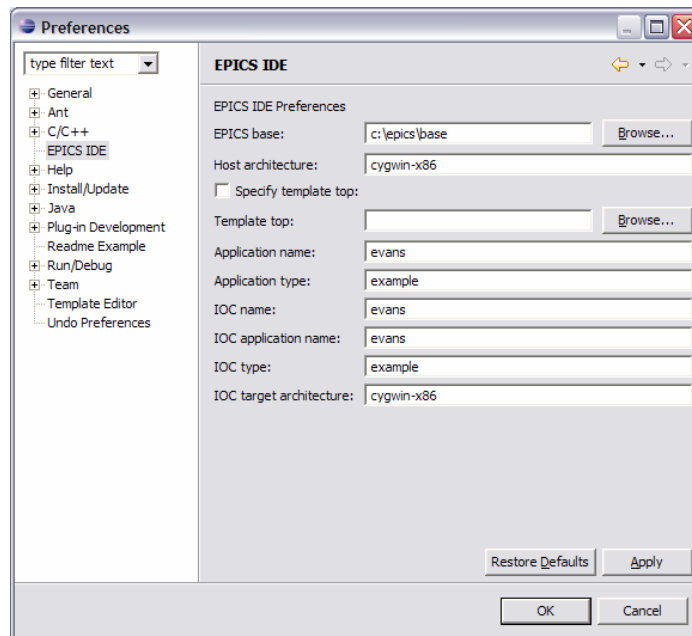
IOC target architecture: cygwin-x86

< Back Next > Finish Cancel

# EPICS IDE

## Preferences and Properties

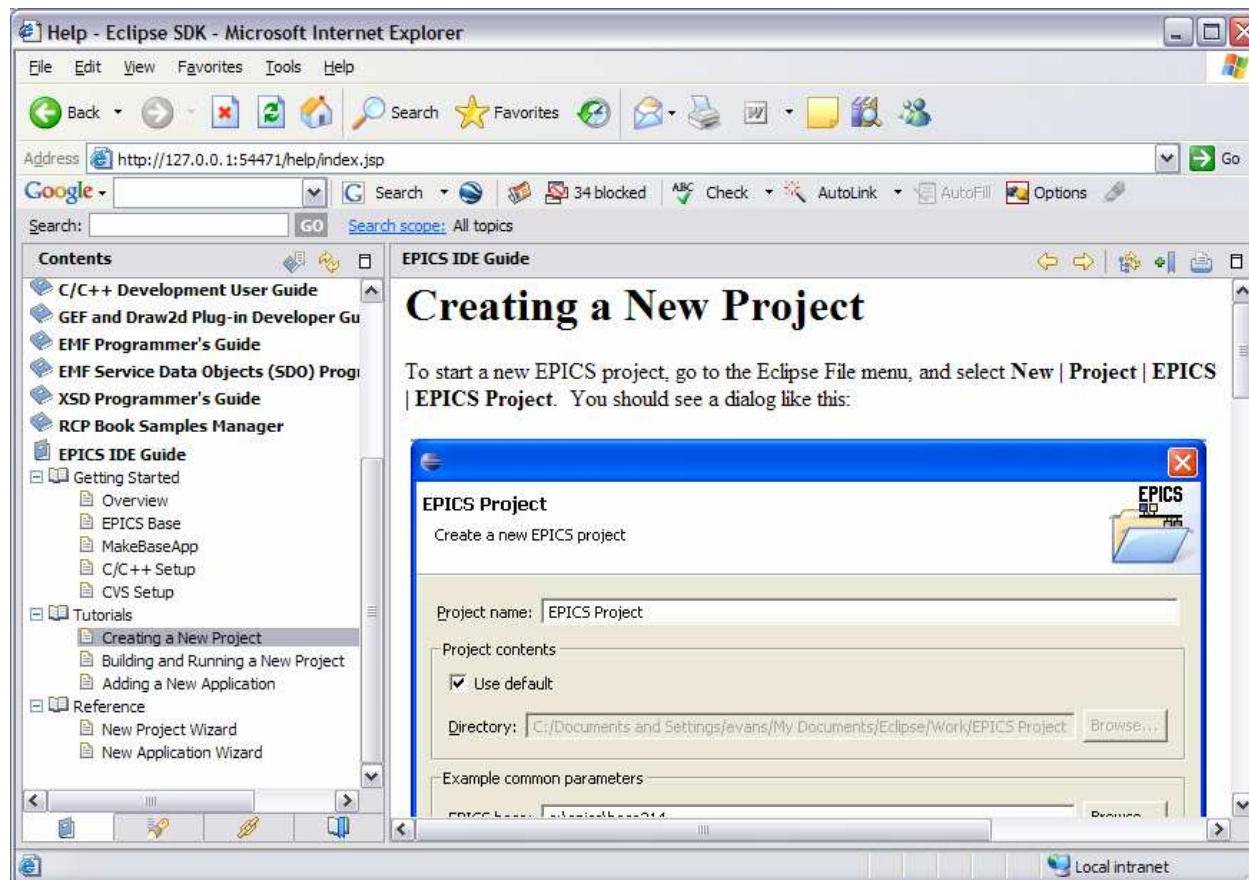
- Preferences exist to set defaults
  - Window | Preferences | EPICS IDE
- Properties are set for a project
  - By the New Project Wizard or by the user





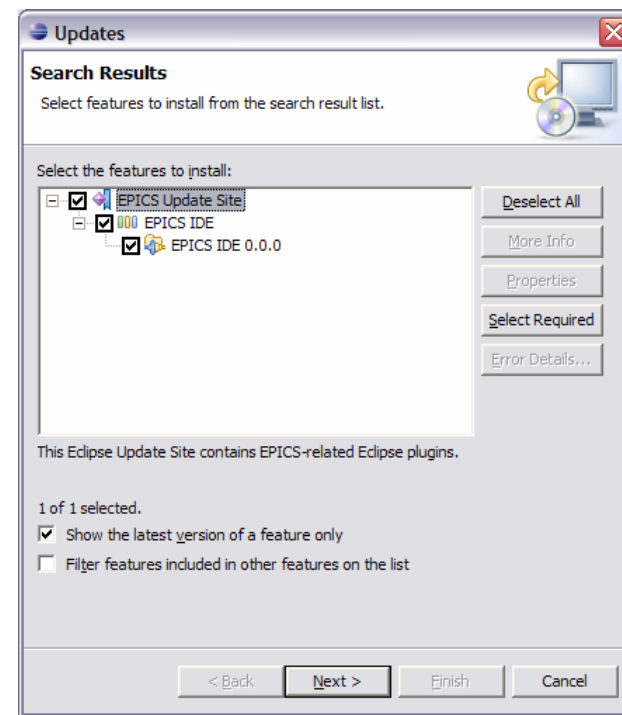
# EPICS IDE Help

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



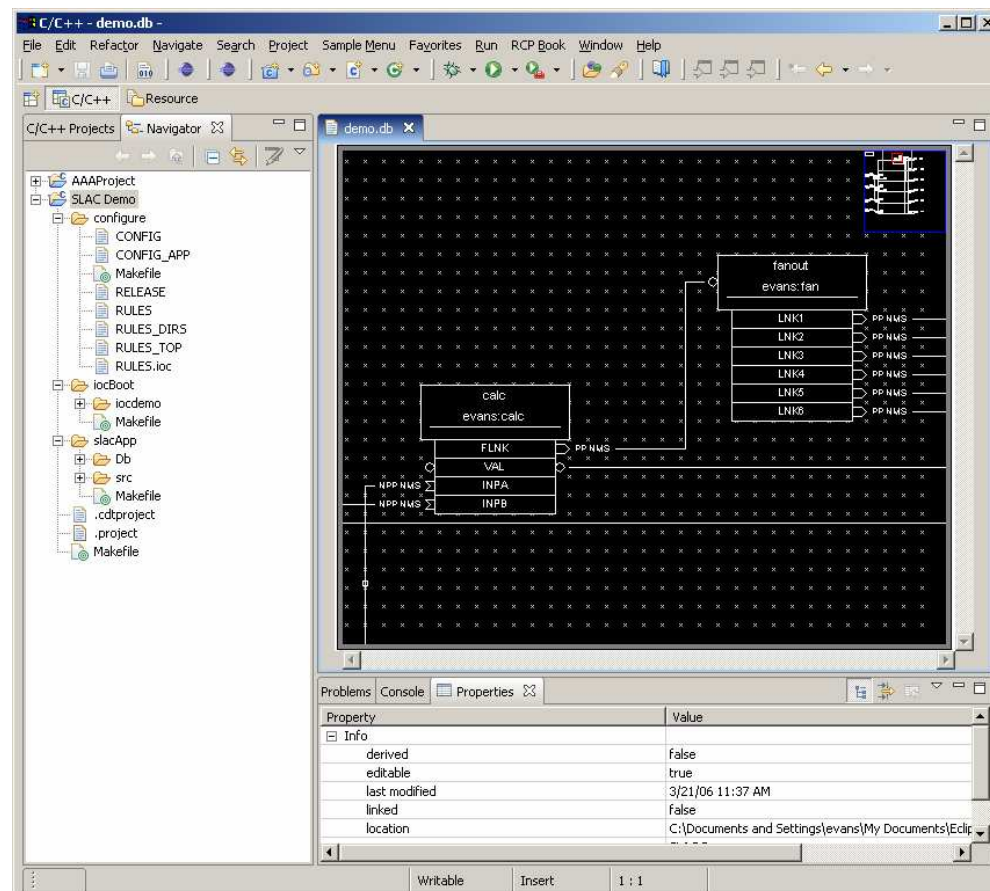
# EPICS IDE Feature

- 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





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# *Thank You*

*This has been an  
APS Controls Presentation*

