Argonne NATIONAL LABORATORY

Introduction to EPICS Training

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U.S. DEPARTMENT OF ENERGY

Welcome

Last series of comprehensive EPICS training classes at the APS was held in 2004

Schedule

- September 2014 through March 2015

Audience

- Users and developers
- Full spectrum of skill set and experience

À la carte


RECORDING
IN PROGRESS

2014 Speaker Backgrounds

Andrew Johnson is a member of the Software Services group at the APS. He joined the APS Controls group as a Computer Scientist in 1999, having previously used and taught EPICS in the Electronics department at the Royal Greenwich Observatory in Cambridge, England. He is lead maintainer for the core EPICS Base software, manages the EPICS website and public developer tools, and co-chairs the EPICS V4 working group.

Jim Stevens is a member of the Controls group at APS. He has many years of experience working on EPICS applications, with an emphasis on beta testing & debugging EPICS device drivers, creating accelerator control system applications, and designing displays.

2014 Speaker Backgrounds

Matthew Newville is an X-ray spectroscopist with a degree from the University of Washington, and has been an APS beamline scientist with the The University of Chicago's Center for Advanced Radiation Sources since 1997. He maintains the PyEpics library to use Epics Channel Access from Python.

Tim Mooney is a member of the Software Services group at the APS. Tim joined the APS in 1993 after having previous been at NIST. Tim works extensively with beamlines at the APS. He is the original creator of the synApps suite of beamline tools, and is the lead maintainer of the synApps, as well of a number of synApps packages.

Introductory Classes

2014-09-18	Title	Content	Duration
1:00 PM	Introduction to EPICS Training	Welcome and overview	¼ h
1:15 PM	Introduction to EPICS	Purpose History Used Community APS Ecosystem V4	1 ½ h
2:45 PM	Channel Access (CA) Basics	What is it Command line tools Other tools that use it	½ h

Clients

2014-09-19	Title	Content	Duration
2:00 PM	MEDM – Lecture and Tutorial	What does MEDM do? How to use MEDM? Widget types Editing screens Hands-on tutorial	1 h 1 h
2014-10-09			
10:00 AM	caQtDM – Lecture and Tutorial	What does caQtDM do? How to use caQtDM? Widget types Editing screens Hands-on tutorial	1h 1h

Client Programming

2014-10-16	Title	Content	Duration
1:00 PM	More Channel Access Concepts	Network protocol Searches Beacons Repeater Configuration variables	½ h
1:30 PM	Channel Access Programming in C and Perl – Lecture and Tutorial	C API Perl API Hands-on tutorial	1 h 2 h
2014-10-24			
2:00 PM	Channel Access Programming in Python – Lecture and Tutorial	Programming with PyEpics Demo PyEpics tools Hands-on tutorial	1 h 1 h 1 h

Databases and IOCs

2014-11-06	Title	Content	Duration
1:00 PM	IOC Database Principles	Records and record types Fields Scanning Links PACT Lock-sets	3 h

Databases and IOCs

2014-11-13	Title	Content	Duration
1:00 PM	IOC Database Practice	Base & synApps record types Reference manual DBD & DB files	1 h
2:00 PM	Creating Your Own Databases - Lecture and Tutorial	Syntax Visual DCT Creating records, links and macros Hierarchical designs	¾ h
		Hands-on tutorial	2 h

Databases and IOCs

2014-11-21	Title	Content	Duration
2:00 PM	Creating IOCs	TOP area makeBaseApp & templates Directory layout IOC commands	1 h
3:00 PM	State Notation Language (SNL) Sequencer	State machines SNL When to use SNL? Sequencer Program structure Variables Event flags, state sets, events, actions, and commands	1 h
4:00 PM	IOC, Database and SNL Hands-on Tutorial	Creating IOCs & SNL programming	2 h

2015 Topics

EPICS Device Support

Managing IOC Support Code

synApps

Using areaDetector

Programming for areaDetector

asyn Drivers

Stream Devices

Using motors

Programming for motors

Scanning

PV Gateway

Building EPICS Software

EPICS Programming Features

Understanding IOC boot parameters

Using ioctools

If there's something you'd like to hear about but don't see on the list, let us know.

www.aps.anl.gov/epics

confluence.aps.anl.gov/display/SSG/EPICS+Training+2014

Prerequisites for Tutorials

- Bring your own laptop
- VNC client is probably the best
- ssh and X forwarding (Linux or OS X) or Exceed (Windows) may work too
- 3 button (emulated) mouse

- Some familiarity using Linux
- Programming tutorials require C/Perl/Python knowledge

- Wireless: APS-Conference
- Server: crackle-vm.aps.anl.gov
- Logins: Provided during tutorials

Thanks again,

And Enjoy!