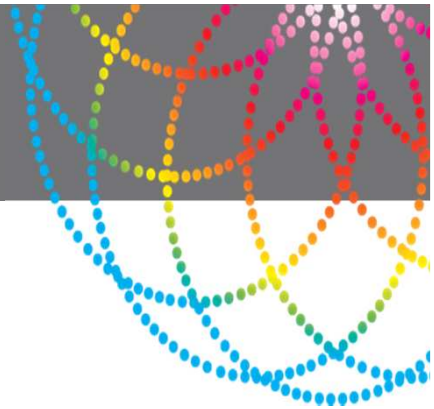
Australian Synchrotron

Turning bright ideas into brilliant outcomes

An EPICS solution that can provide a comprehensive, and high performance motor control system for use at synchrotrons and other research laboratories

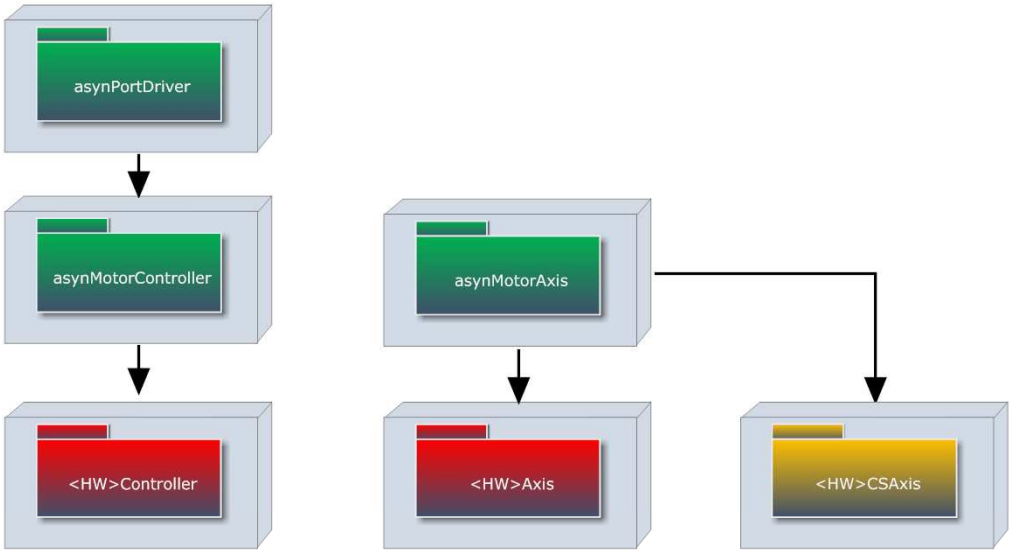
Model 3 motor architecture



Model 3

- Top level object is the EPICS motor record
  - Lots of code/scripts written to this object
- Next layer is the device support
  - Knows about the motor record and talks to the driver
- Lowest layer is EPICS driver
  - Knows nothing about the motor record and talks to the hardware
- C++ model based on asynPortDriver
- ASYN paramList makes it easy to support hardware specific features
- Support for ad-hoc coordinated motion
- Support for coordinated profile motion
- Easily extended to provide a framework for coordinate system motors

Model 3 motor architecture



Example for Delta Tau (DT):
DTController
DTAxis
DTCSAxis

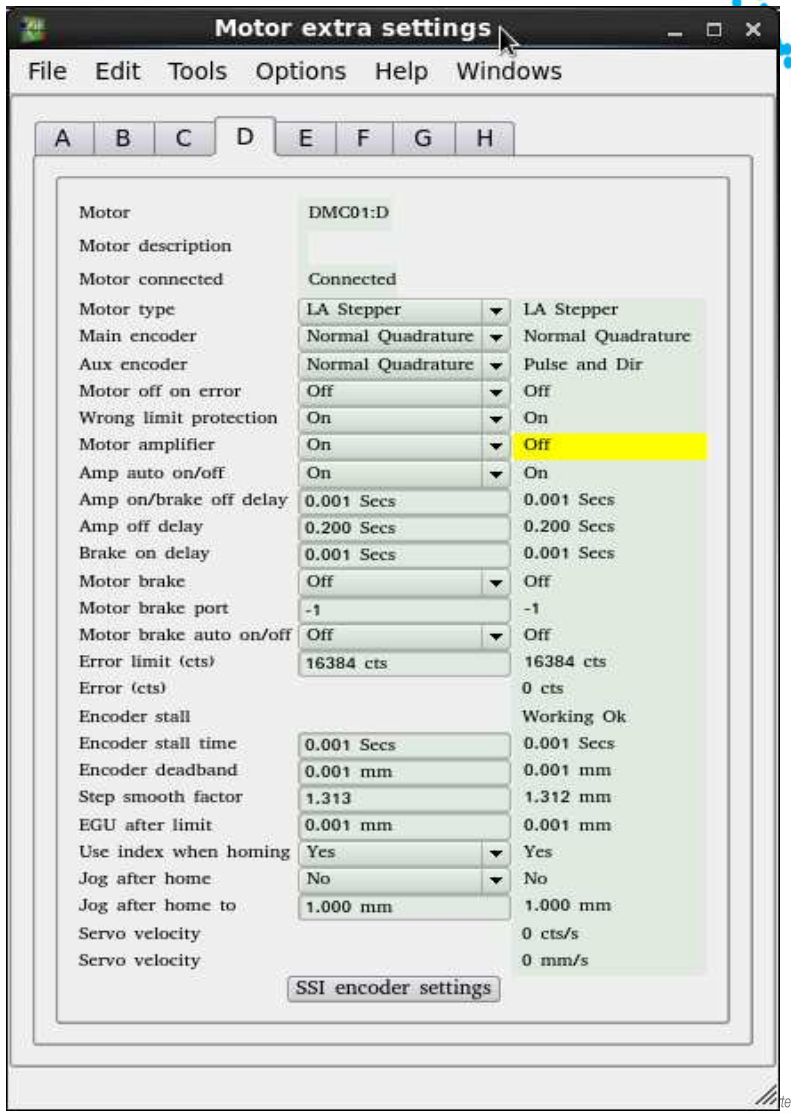
- To be written

- Model 3 architecture parent

- CSAxis.cpp coordinate system motor kinematics. Could be moved into parent class asynMotorAxis.

Hardware specific features

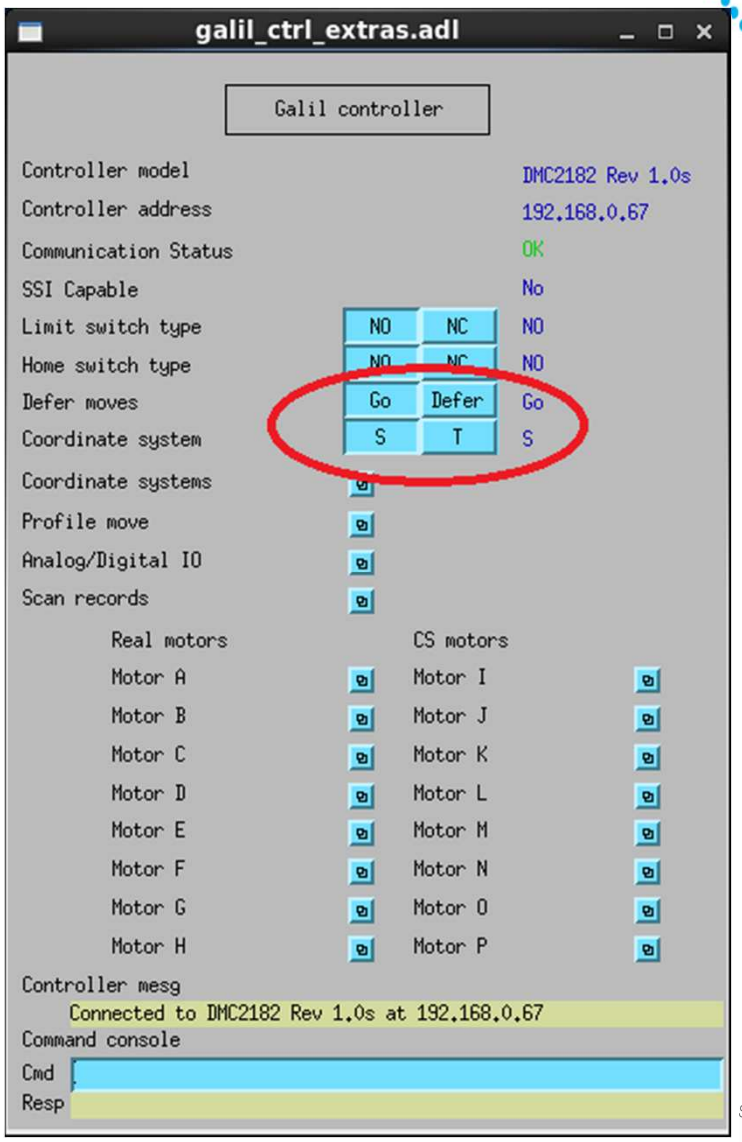
- ASYN paramList
  - Auto amplifier on/off
  - Auto brake on/off
  - Encoder stall time
  - Motor type
  - Encoder type



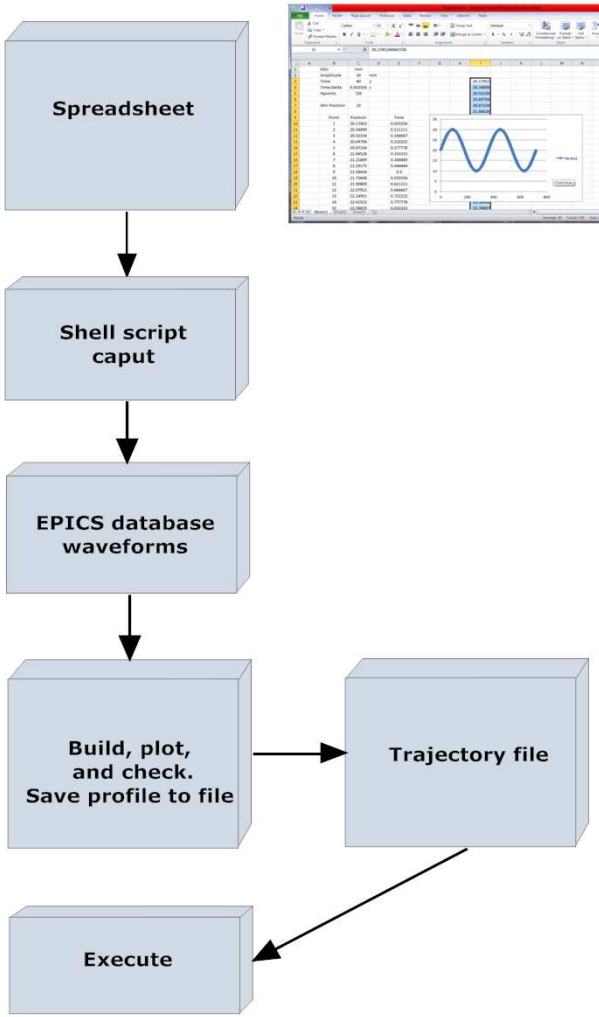
Ad-hoc coordinated motion

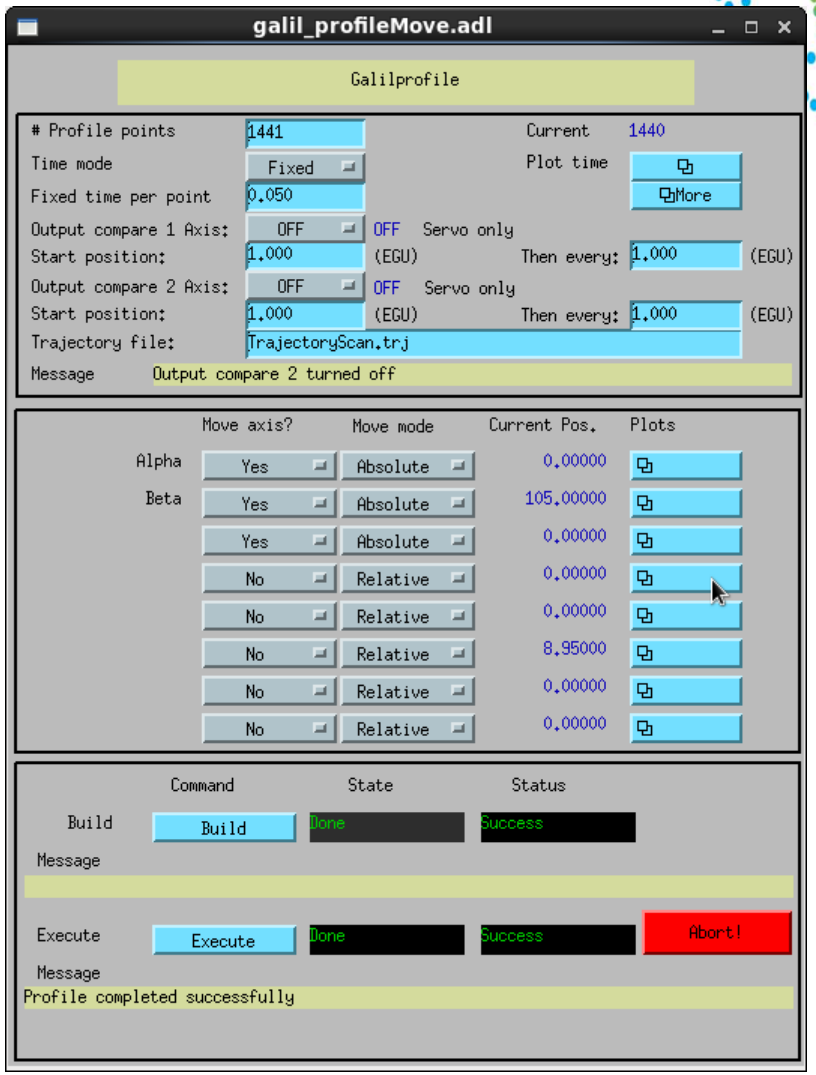
- Deferred moves facility
  - Select deferred
  - Select coordinate system
  - Move all motors
  - Select go

  - Motion coordinated by hardware



HowTo: Profile moves





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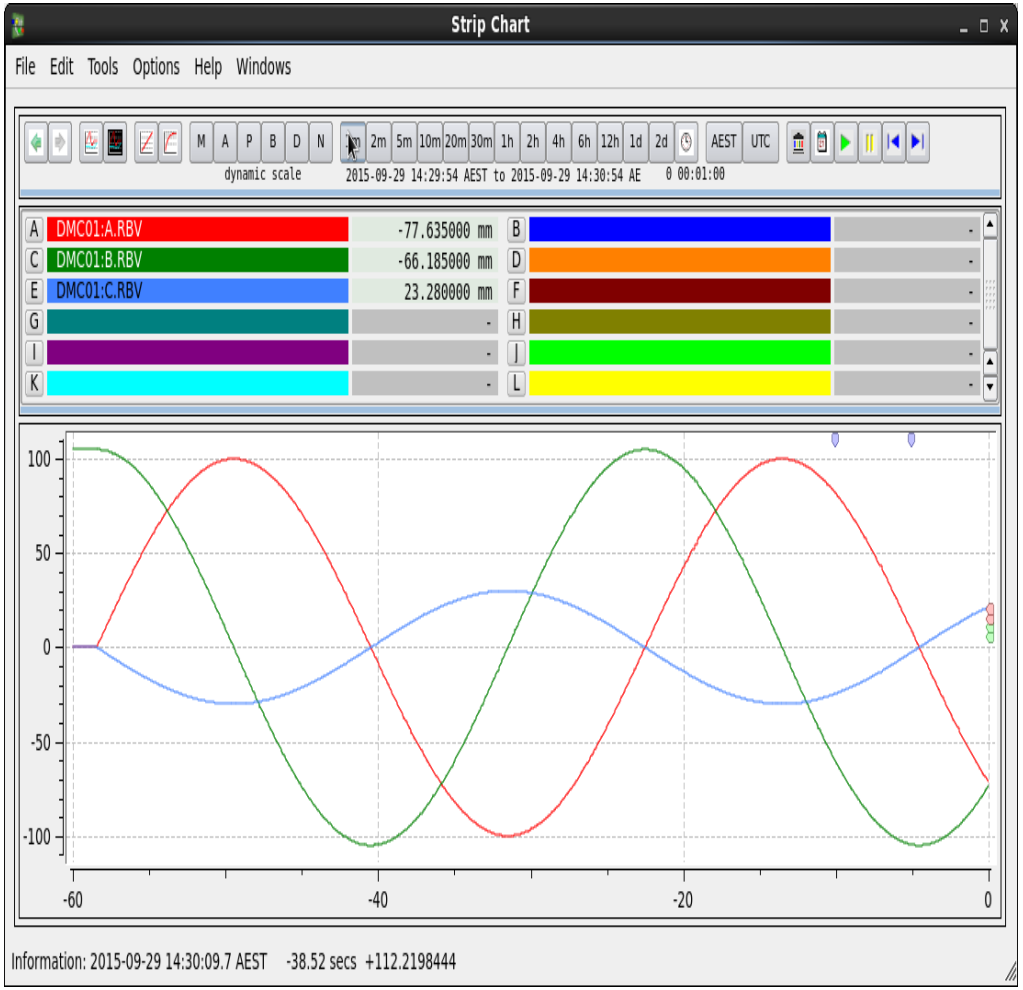
HowTo: Profile moves

- Motor profile in action

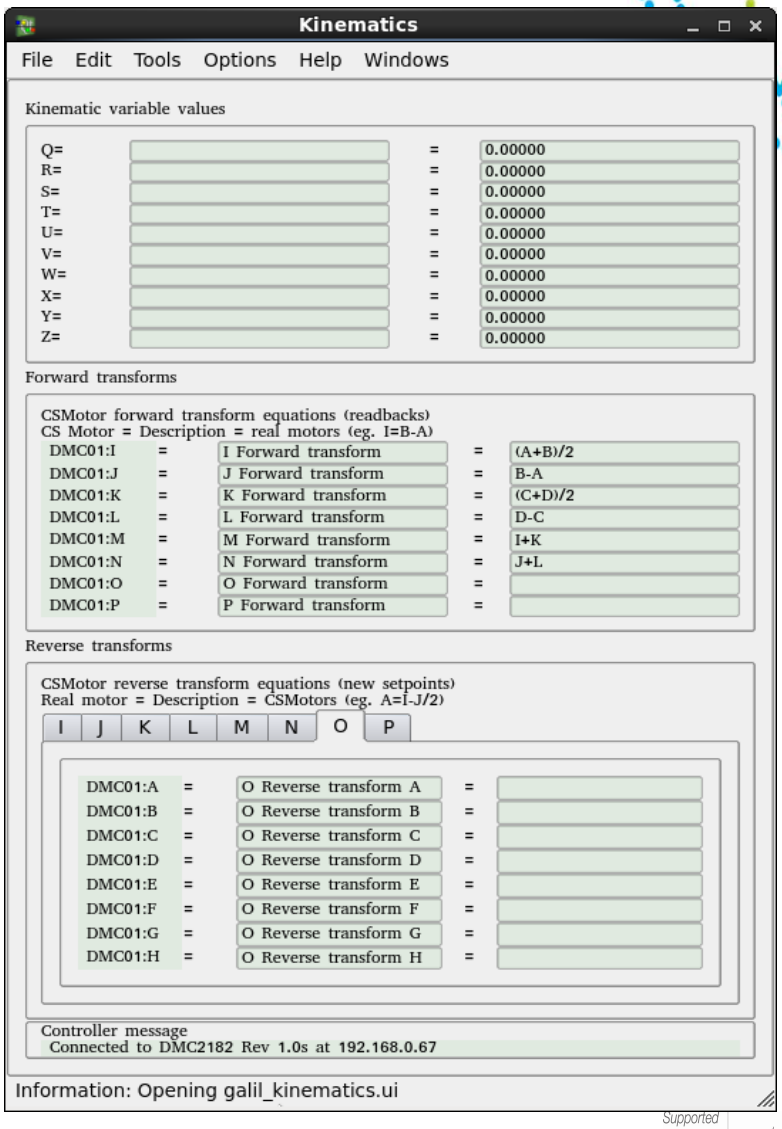


Coordinate system (CS) motors

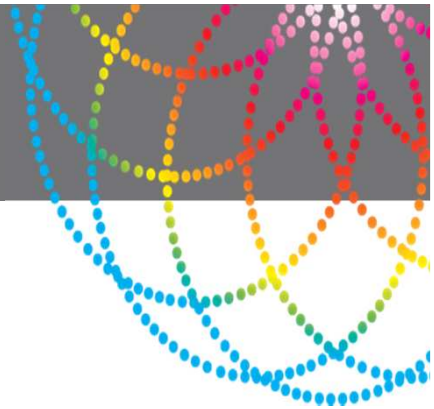
- CSAxis.cpp provides kinematics for coordinate system motors
- 8 Real motors are A to H
- 8 CS motors are I to P
- 10 variables for use in kinematics

Coordinate system (CS) motors

- Kinematics changed by database
- Kinematics could be moved into asynMotorAxis parent class or remain in CSAxis



Questions?



- Demo at Motion Solutions Australia booth