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A state-machine approach to EPICS interfaces for complex devices

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As the number of variables and states of devices grow, implementing, debugging and updating device support EPICS layer becomes a costly and error prone process. In the Australian Synchrotron's XFM beamline, EPICS mapping databases are used to interface hundreds of device variables to high level experiment control scripts.

Using a generic approach, we have developed some toolsets to directly construct the EPICS templates from the state-parameter lists without using subscription files.

Some special control PV's are implemented to enable/disable get and set functions at runtime, for subsets of parameters. This approach is used for implementation of our in-house designed Rascan motion system, as well as for two detectors developed by CSIRO and XIA/Southern Innovation. The approach is proven to be efficient for both deployment and maintenance.

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