Archive Engine

This page describes the conventional Archiver currently in use at LCLS, FACET, and test facilities.

Help on Archiving a PV:

There are two basic archiving methods:

1. Archived "on change" ("monitor" mode). In this mode an Archive Engine (an EPICS client) requests a CA monitor (that is, it subscribes to changes and the engine store all the values the server sends out). The archived PV ADEL value determines when values are sent.

2. Sampled periodically at a specified interval in seconds ("scan" mode). For sample intervals larger than a default (20 seconds), an Archive Engine requests a value from the CA server at the specified interval. For sample intervals less than or equal to the default (20 seconds), instead of actively requesting a value from the CA server at the specified interval an Archive Engine establishes a monitor and only saves values at the specified interval.

For PVs that are sampled periodically, an Archive Engine in general only stores values that are different from the preceding value. This conserves disk space for PVs whose values are not changing often. However, if a PV value has not changed for a default number of times (120), a value will be stored. For instance, if a PV scanned every 30 seconds will be written every hour (120 intervals * 30 seconds) even if it did not change.

For archive monitored PVs, the PV ADEL field determines when values are sent. If this field has a value of 0 (the default), a value will be sent every time the value changes. If this field has a value of -1, a value is sent every time the record is scanned. Otherwise this field specifies a deadband.

For archive monitored PVs, a estimated signal change interval in seconds is required. If this is unknown, a value of 1 is usually the default. If this change interval is known to be larger it is good to specify this larger estimate to reduce the Archiver Engine buffer sizes. In rare cases an estimated signal change interval smaller than 1 (e.g., 0.5) has been specified to catch all transitions.

The questions an IOC Engineer should ask are: (1) what kind of a signal is it (analog, digital, waveform, etc.), (2) how fast do I expect it to change, and (3) what is a significant change.

For analog values that change rapidly, a 1 second scan interval (1 Hz) is often appropriate. For slowly changing analogs a 10-30 second scan interval is typical. If it is a BSA PV, it might also be a good idea to also archive the 1Hz PV. We want to avoid archiving analog values that change rapidly using the monitor archiver method unless a ADEL value can be found to reduce the rate at which values are sent to the archiver to 1 Hz or less frequently. When full resolution is required ADEL should be set to the default 0 value.

For digital signals, the monitor method is common.

For Archive Viewer information go to Archive Viewer