

# Another Proxy IOC?

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# Another Proxy IOC?

## ➤ Requirements

- \* **Build a general purpose tool for creating and serving EPICS process variables.**
- \* **The API must be simple to use. Although the tool will be based on the portable channel access server, the application programmer will not need to be familiar with the server.**

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## ➤ More requirements

- \* Enable creation of PVs from C++ and Tcl code and interactively from a GUI
- \* Provide runtime support for PV attributes: hopr, lopr, drvh, drvl, alarms, val, prec, status and sevr, egu
- \* Implement channel access security
- \* Serve multiple “sponsors” (PV creators)
- \* Provide automatic and explicit PV deletions

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## ➤ Expected use:

- \* **Create PVs using appropriate names as needed for high level applications**
- \* **Avoid “dummy\_float\_1” type PVs on iocs**
- \* **Test high level applications without using an ioc and without needing access to machine variables**

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## ➤ Definitions:

- \* **client - standard channel access client**
- \* **sponsor – process which creates a PV**
- \* **persistent – attribute of a PIOC PV which determines when and how a PV will be deleted and recreated.**

# PV Builder

pioc host

pv name

- pvType
- Scalar
  - Vector
  - Enum
  - String

- dataType
- Byte
  - Short
  - Long
  - Float
  - Double

host

sponsor

pid

- delete
- pv
  - host
  - sp
  - pid

hopr

lopr

drvh

drvl

hihi

high

low

lolo

count

egu

precision

persistant

estring

PIOC ERROR: Duplicate PV



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## ➤ C, C++ API

- \* “sponsor.sl” provides the sponsor class, a default (scalar double) PV and 12 routines for modifying the default.
- \* **Example:**
  - `sp = new Sponsor (hostname);`
  - `sp->pvs.pvtype = PIOC_enum;`
  - `strncpy (sp->pvs.estring, “off”, ”on”, E_SIZE-1);`
  - `ret = sp->pioc_makePV (pvname);`

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## ➤ Tcl/tk API

- \* The package “PIOC” provides `create_defaultPV`, `create_vectorPV`, `create_enumPV`, `create_stringPV`, `create_fullPV`, and `delete_PV`.
- \* **Example:**
  - `package require PIOC`
  - `set req [create_enum_PV $pvname $tcl_pgm_name “on off” 1]`



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## ➤ Features

- \* The PIOC server will exit on startup if a PCAS is already running on that host
- \* Forks a child to communicate with “sponsors” (applications which create PVs)
- \* Has a reload function for recreating persistent PVs after a down or crash.
- \* Serves a “hostname:heartbeat” PV

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## ➤ Warning:

- \* The server will not create a PV with the same name as another PV which it is already serving but it is the user's responsibility to avoid duplicates within the control system.