

## INTEGRATING PSA INTO EPICS

M. Grunder, K. Zerzawy

At the SLS, the PSA (**P**ersonen **S**icherheits **A**nlage) controls access permits to the Ring and the LINAC. A small PC, on each local interlock, with an interface card connected to the parallel printer port is used. This MS-Windows server uses DCOM protocol to communicate to the Control room clients. There a PC is used to visualize the Local interlocks.

The PSA System is at present integrated in the SLS Epics Control System. To archive this data in the Epics archiver and the alarm handler as well as to have these signals on the same screen, as the main control system, these signals need to be implemented as Epics PVs.

### PSA AT THE PSI OVERVIEW

The Personnel safety systems regulate and supervise the persons traffic to the areas exposed to radiation at PSI. A key lock system device logic protects the users against direct irradiation. Only if all conditions relevant for person security are fulfilled, the beam injection can be started.

PSA systems are used in different places at PSI: Proton Accelerator and experimental areas, SINQ, Proscan and at the SLS.

### PSA AT THE SLS

The PSA is running since the SLS operation started in summer 2001. It was not integrated into the SLS control system. The state visualization of the local interlocks was done on a Windows touch panel PC.

The request to integrate the PSA into Epics was raised in 2004. The existing system should not be changed. Therefore, an application was developed that receives the PSA signals from the Windows Server, talking DCOM, and then provides them as Epics PVs.

### PSA SIGNALS AS EPICS PVS

The Server embedded on each PSA system provides a protocol based on DCOM. This serves the same purpose as IBM's "DSOM protocol", which is the most popular implementation of "CORBA". Unlike CORBA, which runs on many operating systems, DCOM is currently implemented for Windows only.

Thus, the simplest way to make the PSA signals available as Epics PVs was to run a Soft IOC on a MS-Windows PC and run 4 DCOM Clients setting these PVs on signal changes.

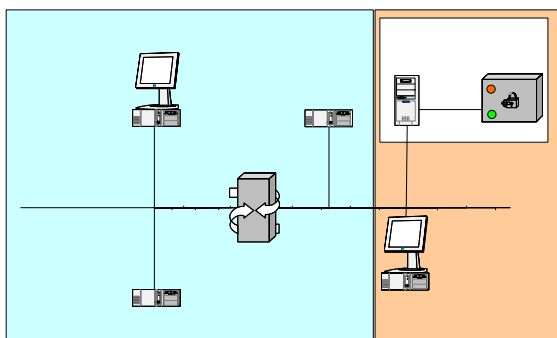


Fig. 1: Diagram of the PSA System at the SLS.

Each of the 4 clients receives all signals from the 4 PSA Servers. (LINAC, RING\_1, RING\_2 and the Intermediate Logik). These client programs use the same DCOM code as the existing "Remote Monitor" project ReMon from section Steuerungs-systeme (OG 9310, resp. K. Zerzawy). The application type was changed from a "dialog" to a "win32 console". Epics functionality has been added to set the Epics PVs provided by the soft IOC running on the same PC.

The soft IOC contains all binary input Process Variables for all 4 clients. An access security file is used to make all PVs read-only. So, it is not possible to set a value by using ca\_put from the controls system.

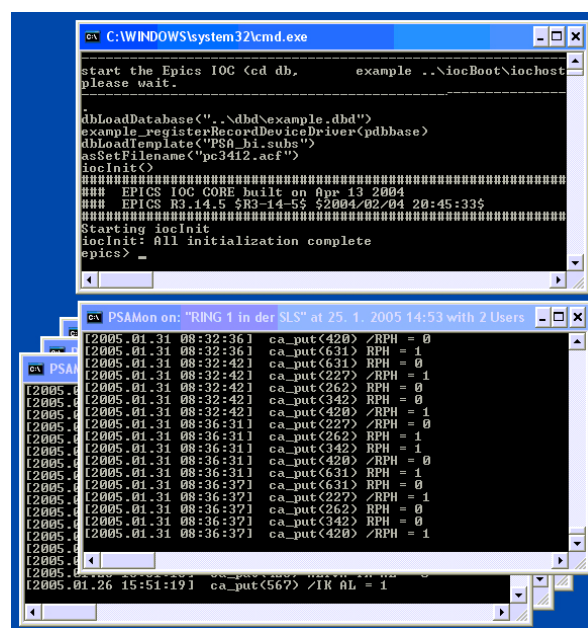


Fig. 2: PC3412 running the soft IOC and 4 PSA clients.

The soft IOC and the PSA clients are not Windows services. But it would be more desirable if this application starts prior to login so that they run after boot time. Microsoft developed a small utility called SRVANY.EXE that acts as a host (or service "wrapper") for the application. In other words, it becomes the service application which does all of the "dirty work" and communicates with the SCM. When it starts, it looks into the registry to find out where the application is located. If it finds it, it starts the application.