**ACQUISITION SERVICES**

The purpose of the acquisition services is to report the condition of the accelerator, outputting data measured by sensors for each electron bunch. Each electron bunch has a PID (pulse identification number) and other characteristics that are collected and presented either as PVs (process variables) or sent directly to a multicast network. BSA (beam synchronous acquisition) stores the data into arrays where the same index of the different PNs marks data belonging to one electron bunch. BSAS (beam synchronous scalar service) stores the most recently acquired data as a scalar for each PV.

**CODE SUMMARY**

**atrium.py**
- Parses the command line and stores arguments to settings.py
- Gets the st.cmd (startup) file from the IOC under test and retrieves information about prefixes and suffixes of PNs
- Main function that calls on system and user buffer tester

**settings.py**
- Shared global variable file
- Stores information about the CPU, TPG, IOC, user buffer under test and
- There is no NaN’s in PV data
- Working on testing for BLD and BSAS acquisition
- For PID PVs, check if PIDs are consistent with fixed rate
- Shared global variable file
- Gets the st.cmd (startup) file from the
- Add the IOC argument to specify the specific IOC to test
- Change from running user buffer acquisition for every PV to
- Change BSSS user buffer acquisition so that it could
- Parses the command line and stores arguments to settings.py
- PV is populated (nonzero length)
- BSSS

**FUTURE IMPROVEMENTS**
- Add an argument to test only user or system buffers
- For user buffer PVs, check if number of
- Get two samples of each PV; use PV class for system buffers
- Run tests for all user buffer fixed rates instead of only 1Hz

**FEATURES I’VE WORKED ON**

- Add the IOC argument to specify the specific IOC to test
- Add an argument that limits the maximum time spent on user buffer acquisition
- Add an argument to test only user or system buffers
- User Buffer Acquisition Structure
- Change from running user buffer acquisition for every PV to
- Running tests for all user buffer fixed rates instead of only 1Hz

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