

DØ DATA DISTRIBUTOR

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Abstract

An event queuing system for monitoring processes in the DØ online environment.

Fermilab CD/ODS-OSP

What:

A queuing system allowing monitoring programs to request events matching a list of triggers with prescales to be queued and later sent for analysis.

Requirements:

- ✧ An event queueing system which allows for multiple monitor processes to request events from the online data flow based on trigger and/or stream of the events.
- ✧ Allow multiple event sources.
- ✧ Average input rate of 12.5 MB/sec (50 Hz of 250 KB per event).
- ✧ Burst input rate up to 8x the average.

- ✧ Events up to at least 6 MB in size (typical approx. 250 KB).
- ✧ Must present minimal impact to online system and not interfere with data logging.

Features:

- ✧ Each monitor process is allocated a separate queue.
- ✧ Each monitor process can register for one or more trigger or stream types.
- ✧ Each monitor process can set a separate prescale for each trigger or stream type it has requested.
- ✧ Each monitor process can control whether events in its queue can be overwritten when the queue is full.

- ❖ Each monitor process can specify the maximum number of events that can be in the queue.
- ❖ Each monitor process can request a summary of the statistics for its queue or for all queues currently maintained by the Distributor.
- ❖ A summary of statistics for all queues can be requested by any process which requires the information.
- ❖ Monitor processes can connect and disconnect from the Distributor as needed.

- ❖ Queues are automatically cleaned up after a monitor process disconnects.
- ❖ Multiple event sources are supported in a seamless manner including sources outside normal online data flow.
- ❖ An event simulator is provided which can read Monte Carlo events and send them to the Distributor as if they were from the real online data flow for testing monitor processes.

Quick Start:

❖ Setup Environment

- `setup D0RunII -f NULL`
- `setup ace v4_6`

❖ Starting in Non-expert Mode

- `start_dist -d 0 &`

❖ Starting in Expert Mode

- Running with Debug Messages on (1-3)
 - * `OSF1V4-KCC_3_3/ddtoy_dd -d 1`
- Listening on a different port (“52100” [52100-52104])
 - * `OSF1V4-KCC_3_3/ddtoy_dd -d 0 -p 52101`

❖ Stopping

- `kill -9 process-id`

❖ Running Level 3 Simulator

- Generate Fake Data (for size: `-s nbytes`)

- * `OSF1V4-KCC_3_3/ddtoy_lvl3 -d 0 -s 250000`

- Read Monte Carlo File

- * `start_lvl3_file`

❖ Running Examine simulator

- Request 100 events

- * `OSF1V4-KCC_3_3/ddtoy_examine -d 0 -i 100`

✧ Search for a Running Distributor

– ping_dist

Notes/Caveats:

The scripts mentioned above have hardcoded paths at the moment and expect to be run from the /home/d0run/bin area. These should be taken as templates for now, copied and modified as needed.

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