

DØ Run II Data Distributor Requirements

S. Fuess, G. Guglielmo, C. Moore, & J. Yu

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- How many event distributors? \Rightarrow One distributor per data logger. There could be more than one data logger. (Introduces possible problem in free selection of triggers.)
- Should run on Digital unix (OSF1).
- I/O to Examine clients should be platform independent.
- Though ideally the distributor should handle any size events but for practicality a parameterized upper limit is acceptable. (Should handle the events with the typically 250kB to maximum of \sim 520kB in an environment of typical output rate of 50-70Hz.)
 - Typical total input rate to sum of all distributors is 50Hz.
 - Typical output rate to clients will vary depending on client functionalities.
- Should, in principle, be independent of data format, but will be dependent on the event selection scheme. (**The event selection scheme should be discussed in the meeting. Scheme has implication on both Examine, distributor and the data logger**)
- Should handle various trigger requirement configurations :
 - Single trigger
 - Multiple triggers
 - Event stream

⇒ *The list of triggers should be passed from EXAMINE clients.*

- Supports the query of configurations (eg. trigger selections of the given EXAMINE process).
 - Get data event counts and transfer rates.
 - Get status of client processes.
- Should not limit number of attachable examine processes in software but limited by hardware.
- Should allow at least two data sources to the distributor and only gets a new event when a need arises:
 - Data logger from a shared memory
 - Reading from a file, mimicking online real time configuration.
- Should handle multiple processes requesting events with different conditions at the same time.
- Needs to maximize of the throughput to each client.
- Do we want a capability of accepting every single event? (**Need a discussion in the meeting. This has implications to the flow control to the logger.**)
- Distributor uses Client/Server package for communications :
- Should be aware of Begin/End run.
- Diagnostics and error messages:
 - Supports queries of configuration, operation, statistics, and status, etc.
 - Generates alarms on :
 - * Shared memory allocation (logger? or distributor?)
 - * Failed network connections between both the client and logger end.
 - * Shared memory full.

- Notify users for establishment of a connection.
- Check connections to client/logger (built in the Client/Server package).
- If connection is lost auto-reconnect and notify user of reconnection. (Built in the C/S pack).
- **Need a discussion on the propagation of Run transition status to logger, distributor, and EXAMINE clients?**