

Requirements for Run Services

The Run Services package provides run control services for the DØ data acquisition system by standardizing intercommunication between the data acquisition processes which reside on an IOC (I/O Controller). Processes may be service providers, service consumers, or both. The following tables outline the requirements for the Run Services package by category. A set of milestones (phases) is also suggested.

- Service Provider (server)
 - ◆ Operations
 - Advertise (add) a service
 - Withdraw (delete) a service
 - Suspend acceptance of new clients
 - Resume acceptance of new clients
 - Obtain a list of current clients
 - Send (broadcast) a message to all clients
 - Send a message individually to each client (as when separate resources are required for each client)
 - ◆ Options
 - Notification of new clients by placing a message on the server's work queue
 - Release by client required
 - ◆ A single process may provide multiple services
- Service Consumer (client)
 - ◆ Operations
 - Subscribe to a service
 - Unsubscribe from a service
 - Receive a message
 - Release a message's resources

- ◆ Options
 - Block on receive for an empty message queue
- ◆ The messages from all subscribed services are placed on a common queue
- ◆ A service consumer must be notified when a service provider withdraws a service
- Service Environment
 - ◆ Operations
 - Obtain a list of all services
 - ◆ The code must be platform independent (use POSIX interfaces?)
 - ◆ Messages may have a priority
 - ◆ The service environment must provide a proxy process that operates as a local client for subscribers located on other nodes and that operates as a local service provider for services located on other nodes.
 - ◆ For messages that carry one or more resources, the service environment must provide a mechanism for the timely release of the resources.
 - ◆ Any process, including the owning process, may send a message to a run services queue.
- Development Phases
 - ◆ Phase 0 - Initial version used during the testbeam run
 - ◆ Phase 1 - Services provided on a single node
 - ◆ Phase 2 - Services provided across multiple nodes without data format translation or buffer transmission
 - ◆ Phase 3 - Format translation between platforms and buffer transmission

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