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cMsg - A general purpose, publish-subscribe, interprocess communication implementation and framework

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cMsg is software used to send and receive messages in the Jefferson Lab online and runcontrol systems. It was created to replace the several IPC software packages in use with a single API. cMsg is asynchronous in nature, running a callback for each message received. However, it also includes synchronous routines for convenience. On the framework level, cMsg is a thin API layer in Java, C, or C++ that can be used to wrap most message-based interprocess communication protocols. The top layer of cMsg uses this same API and multiplexes user calls to one of many such wrapped protocols (or domains) based on a URL-like string which we call a Uniform Domain Locator or UDL. One such domain is a complete implementation of a publish-subscribe messaging system using network communications and written in Java (user APIs in C and C++ too). This domain is built in a way which allows it to be used as a proxy server to other domains (protocols). Performance is excellent allowing the system not only to be used for messaging but also as a data distribution system.

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