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HEPBook - A Personal Collaborative HEP notebook

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A High Energy Physics experiment has between 200 and 1000 collaborating physicists from nations spanning the entire globe. Each collaborator brings a unique combination of interests, and each has to search through the same huge heap of messages, research results, and other communication to find what is useful.

Too much scientific information is as useless as too little. It is time consuming, tedious, and difficult to sift and search for the pertinent bits. Often, the exact words to search for are unknown, or the information is badly organized, and the pertinent bits are not found. The search is abandoned, the time is lost, and valuable information is never communicated as it was intended.

Much of a collaboration's information is in the individual physicists paper logbooks. The physicists record important and pertinent information for their research. They save the log books to refer to it later, copy pages, and distribute them to their collaborators who share their interest and research.

Electronic Logbooks are now used in the control room of large detectors during the acquisition phase. They have proven useful for communicating the status of the detector and to keep the history of lab sessions in a format that can be queried and retrieved quickly. It has enabled remote monitoring of the detector and remote emergency help.

We have implemented an electronic Control Room Logbook, called CRL. It is used in the D0 experiment's detector control room for the Run II acquisition. As of mid April 2004 there are over 305,000 entries in the D0 logbook, all viewable and able to be annotated from the web. Other experiments such as CMS, MiniBoone, and Minos have also adapted the CRL. These experiments all have very different needs, so they all configured and customized the CRL in many different ways. The HEPBook will move the logbook from the control room to the personal and collaborative HEP notebook. In this paper we will review the HEPBook technology and capabilities and discuss the new HEPBook architecture. Among the topics discussed will be the use of Java reflection to recursively produce an XML representation of an entry, the ability to save personal entries as well as share entries among a collaboration through multiple repositories which incorporate software agent technology, interface with the GRID, and implement multiple security models. The HEPBook runs on all Java platforms including Apple, Win32, and Linux. A brief demo will be given of the HEPBook.

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