

Advanced Tools for Enhancing Control Room Collaborations*

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The US National Fusion Collaboratory (NFC) project has been exploring a variety of computer and network technologies to develop a persistent, efficient, reliable and convenient collaborative environment for magnetic fusion research. One goal is to enhance remote and collocated team collaboration by integrating remote participation and collaboration software tools into control room operations as well as with data analysis tools. To achieve this goal, the NFC introduced two new computer-based collaboration technologies into the DIII-D National Fusion Facility tokamak control room. The first technology is a high-resolution (3840x1024) tiled display wall installed in the DIII-D control room. This display was constructed from three 50" individual displays designed to present a seamless view. Multiple new software tools have been developed or customized for this environment as well as an information sharing mechanism that can display the snapshot of any user's computer screen on the tiled display. By creating a shared public display space and providing real-time visual information about the multiple aspects of complex experimental activity, the large tiled display is playing an important role in increasing the rate of information dissemination and promoting interaction among team members. The second technology being implemented is the "tokamak control room aware" Jabber-based Instant Messaging (IM) service. In addition to providing text-chat capabilities for research scientists, a mechanism has been implemented that exchanges messages between Jabber conferencing rooms and tokamak experiment related software tools. Messages are automatically posted to Jabber users from the operations status computer, electronic logbook, and the data analysis monitor system. By utilizing MDSplus events, a web-based data visualization application makes real time plasma signal waveforms available from public chat rooms by automatically sending a URL after each plasma shot. Thus, Jabber is not only for exchanging text messages and real-time information among scientists, but also for remotely monitoring the status of ongoing tokamak experiments. As a result, the IM service has become a unified portal interface for both team collaboration and remote participation.

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