

The H-1NF Electronic Logbook

B.D. Blackwell and C. Gough*

Plasma Research Laboratory, Australian National University

*Canberra Institute of Technology

To complement and document the large database of plasma pulse data recorded during operation of the H-1 national facility, a web-based relational database has been developed. This is a virtual logbook for the experiment, containing machine-generated summary data for every shot, and comments, thumbnail graphs and analysis fragments entered by the experimental physicists.

The bulk of H-1NF data is in the form of pulse of “shot” files, containing individual measured values, and tens to hundreds of channels of transient recorder data. The principal plasma diagnostics are processed to produce snapshot values, and time and spatial averages that summarise the shot, and about one hundred of these quantities are recorded automatically in a summary table using the MySQL relational database. Other tables connect log file entries made by physicists, topics and information about the author of the log entries. This database schema relates the summary table and log entries so that information can be easily retrieved in many different ways.

An important feature is a traditional log-book “view”, where experimenters can see their comments in the context of the summary information comments by others, in a time sequence. Having this context updated quickly gives users a better picture of what is happening, provides an incentive to use the system, and more confidence that their contributions will not be lost. Alternatively, the full power of a relational database can be employed to search for information using SQL queries. The results can be processed, or simply viewed. A web interface provides point-and-click access to this information, and hyperlinks allow, for example, analysis scripts to be re-executed, with variations or updated data. An IDL interface allows users to edit entries in the logbook without leaving their normal analysis environment.