

## LOCUS and FILL\_DB

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LOCUS and FILL\_DB are IDL / MDSPLUS utilities that provide a convenient way to generate a table of plasma parameters from C-Mod shots and to plot data from the table. They are patterned after the LOCUS/MINGL utilities developed about twenty years ago on TFTR by Jane Murphy and Dick Wieland.

Please send comments and bug reports about these utilities and about this documentation to me at [sscott@pppl.gov](mailto:sscott@pppl.gov).

These utilities and sample shotlist and parameter list files are available from  
/home/sscott/locus

- fill\_db.pro
- locus.pro
- sample\_shot\_list.txt
- sample\_parameter\_list.txt

Major features are:

**FILL\_DB:** utility to populate plasma data into a database table

1. User defines two simple ascii files: a list of shots to be processed, and a list of waveforms whose values are to be read, extracted, and stored into the table.
2. The user can elect to store the data under 'generic' column names, which allows easier table generation and maintenance by Josh.
3. A set of 'event times' are defined that allow the user to optionally record data at special times in the discharge, e.g. the disruption time, rather than at fixed times in seconds.
4. A set of 'extraction keywords' are defined that allow you to define processing of the data before it is written into the table. For example, you can choose to store the *average* value of data (within a defined time window), the *maximum* value of the data within the time window, the *time derivative* of the data within the time window, the *maximum of the data throughout the entire shot*, etc.

**LOCUS:** utility to plot data in a database table

1. Maintains knowledge of the original 'convenient' column names defined by the user, so these names can be used transparently.
2. No knowledge of SQL is required. Syntax for constraints is very simple, e.g. "(Ip>1.0)and(Bt>4.5)".
3. Moderately complex functions can be plotted, for example you can plot  $W_{tot}/(P_{ohmic}+P_{rf})$  versus  $I_p*(bt^{0.5})$ .
4. A variety of post-plot options are available to (a) identify individual shots with mouse clicks; (b) fit the data with polynomials, Gaussians, and other functional forms; (c) dump the selected data into a file, etc.

See the following links for additional information on FILL\_DB and LOCUS:

[FILL\\_DB User's Guide](#)

[LOCUS User's Guide](#)