# How can I save MATLAB variables to a text file?

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To save your matlab variables/arrays as ascii text, there are a number of things you can do. Here are some options in order of increasing difficultly:

- For small matrices, you can use the "diary" command to create a diary file, and then list the variables on this file. You can then use your text editor to manipulate the diary file at a later time. The output of the diary includes the matlab commands used during the session. To turn the diary on, you simply enter a command of the form:

  ```
  diary filename
  ```

  To turn the diary off, just enter the command:

  ```
  diary off
  ```

  When using this method, you have some control the output format with the "format" command. See "help format" for more details.

- You can save variables using the "save" command, with the /ascii option.
  For example:

  ```
  A = rand(4,3);
          save temp.dat A /ascii
  ```

  creates an ASCII file called temp.dat which contains something like:

  ```
  0.2113  0.8096  0.4832
          0.2115  0.7496  0.4483
          0.4813  0.5896  0.4383
          0.2373  0.5654  0.1934
  ```

  The format options are limited to either short or long floating point format with the "save" command.

- Use the "fopen" and "fprintf" commands in Matlab to create your own custom format. These commands are similar to the ANSI C functions of the same name, with some extensions. Here is a simple example from "help fprintf". These statements

  ```
  >>  x = 0:.1:1; y = [x; exp(x)];
            >>  fid = fopen('exp.txt','w');
            >>  fprintf(fid,'%6.2f  %12.8f\n',y);
  ```

  create a text file containing a short table of the exponential function:

  ```
  
              0.00    1.00000000
              0.10    1.10517092
                  ...
              1.00    2.71828183
  ```