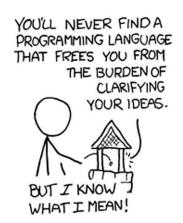
Beyond the Mouse – A
Short Course on
Programming
5. Matlab IO:
Getting data in and out of Matlab

Ronni Grapenthin and Glenn Thompson

Geophysical Institute, University of Alaska Fairbanks

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"The Uncomfortable Truths Well", http://xkcd.com/568 (April 13, 2009)

- File access
- Plotting Data
- Annotating Plots
- Many Data one Figure
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File access 1: Excel-data

xlsread

- [num, txt, raw] = xlsread('myfile.xls', 'sheet23');
 attempts to read sheet 23 (first sheet if parameter omitted)
- num a matrix that contains all numeric data
- txt a cell array that contains all text data
- raw cell array with columns xlsread could not interpret

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xlswrite

- [status, msg] = xlswrite('myfile.xls', M, 'sheet42');
 attempts to write matrix M to sheet 42 of myfile.xls
- status 1 on success, 0 on error
- msg error message object with fields message and identifier

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See Also:

dlmread, dlmwrite, csvread, csvwrite

File access 1.5: Opening and closing files

fopen

- o fid = fopen('filename', mode);
 Open a file, do not discard fid!
- mode is (>help fopen for full list):
 - 'r' read (default)
 - 'w' write (overwrite if file exists careful!)
 - 'a' append (append if file exists)

Wherever fid is used as a parameter with functions below, fopen, fclose must bracket the function call!

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fid = fclose(fid);
close file with identifier fid

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Wherever fid is used as a parameter with functions below, fopen, fclose must bracket the function call!

File access 2: Text Files 1/3

textread (deprecated, will be removed)

[A, B, C, ...] = textread ('filename', 'format', N);
 reads data from file 'filename' to multiple outputs A,B,C,... using specified format until entire file is read, or N times.

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textread (deprecated, will be removed)

• [A, B, C, ...] = textread ('filename', 'format', N); reads data from file 'filename' to multiple outputs A,B,C,... using specified format until entire file is read, or N times.

textscan

o c = textscan(fid, 'format', N);
reads data from file fid OR a string to cell array C using specified
format until entire file is read, or N times (resume from where left
by calling textscan again later).

File access 2: Text Files 1/3

textread (deprecated, will be removed)

• [A, B, C, ...] = textread('filename', 'format', N); reads data from file 'filename' to multiple outputs A,B,C,... using specified format until entire file is read, or N times.

textscan

• C = textscan(fid, 'format', N); reads data from file fid OR a string to cell array C using specified format until entire file is read, or N times (resume from where left by calling textscan again later).

Use textscan if you want ...

- to read large files (better performance than textread)
- one cell array as opposed to many outputs
- read from any point in the file (use fseek on fid first)
- more options and choices in data conversion (see doc)

File access 2: Text Files 2/3

fprintf

- ocunt = fprintf(fid, 'format', A, ...);
 formats data in matrix A (and additional arguments) according to
 format string and writes to the file associated with fid
- count number of bytes written

File access 2: Text Files 2/3

fprintf

- count = fprintf(fid, 'format', A, ...); formats data in matrix A (and additional arguments) according to format string and writes to the file associated with fid
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See also

- dlmwrite: Write matrix to ASCII delimited file
- csvwrite: Write matrix to comma-separated value file

File access 2: Text Files 3/3

fprintf example

```
clear all. clc. close all:
% create data here (row vectors!)
x = 1:10
y = rand(1.10)
z = rand(1,10)
% open a file in write mode
fout = fopen('random numbers.txt', 'w');
% write our data:
% x is first column,
% v is second column
fprintf(fout, '%d\t%f\t%f\n', [x; y; z])
% don't forget to close the file!
fclose (fout)
```

File access 2: Text Files 3/3

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```

output

```
1 0.438744 0.276025

2 0.381558 0.679703

3 0.765517 0.655098

4 0.795200 0.162612

5 0.186873 0.118998

6 0.489764 0.498364

7 0.445586 0.959744

8 0.646313 0.340386

9 0.709365 0.585268

10 0.754687 0.223812
```

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