Basic: Scripts

Matlab basics: Scripts

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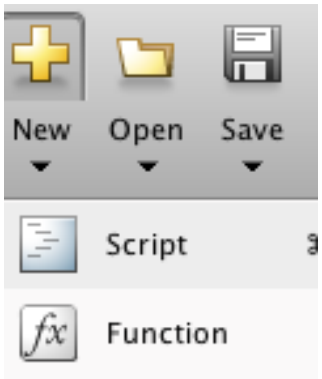
- **Scripts are**
  - Matlab commands in a file, called m-file
  - written in the Matlab (or other text-) editor
  - saved as a text file with .m extension
- To create an m-file from command-line, write;



`>> edit myscript.m` ,
or click top left. Choose *Script* or better still, *Example* located under *Function* to get a template for your script also ready for publishing.

Example script


```
%% Example script 1
% File name: scriptexa1.m
x=linspace(0,4*pi,1000);
y=sin(3*x)+2*cos(5*x);
plot(x,y)
%% Find maximum of function values
maxy=max(abs(y))
ind=find(y==maxy);          % Find index
                            % where max occurs
```

Script continues $\longrightarrow$ NEXT PAGE

Example script, continued

Rest of script:

```
hold on                          % Keep previous graphics.
plot(x(ind),y(ind),'*') % Mark the max-point with '*'
ylim([-3.2,3.2])                 % Stretch y-axis slightly.
disp(['max value = ' num2str(maxy)])
                                 % Displays in command window.
title(['max value = ' num2str(maxy)])
                                 % Displays in Graphics window.
shg                              % Show graphics.
hold off
```

Execute,publish

To run the script:

- On the command line: `>> scriptexa1` **or:**
- In editor:
  - `CTR-ENTER` or
  - Green thick arrow
  - Publish (after running and correcting errors)
- Error diagnostics in editor: little square on top right should show green

Some properties of scripts:

- All variables created and modified in a script exist in the workspace even after it has stopped running.
- The state determined by "system commands", such as `hold on`, `format long`, etc. remains.

Exercise: scripts

1. Make a script *myplots1.m* that
   - creates a vector `x` of 100 values in the interval $[0, 2\pi]$ and plots the graphs:

     $$y_1 = \cos(x), y_2 = \sin(x), y_3 = \sqrt{x}$$

     in the same figure.
   - Try various plot options, like `title,legend,grid on` Study `help plot, help linspace`, also `doc plot, ...`.
   - Observe the square on top right of editor window. It should show green. One reason for "non-green" is omitting semicolons at the end of line. (Sometimes, for small outputs, you can leave out some of the semicolons.)
     Continue $\rightarrow$ next page

Exercise: scripts, continues

2. Edit scriptexa1.m
   - Run in different ways, especially `CTR-ENTER` in editor, make your own modifications.
   - `help find, help max`
   - Try `publish`