

MATLAB Reference: Importing & Plotting

Data Types

File extension	File format	Description
.csv	Comma separated	Commas separate each field of text
.txt	Delimited text	Tabs separate each field of text
.dat	Data	Can include data, text, graphics, etc.

Importing Commands

Command & syntax	Purpose
<code>load('filename')</code>	Loads the data in a text or data file into an array. The file can contain only numeric values. <i>Example: <code>load('data.txt')</code></i>
<code>csvread('filename', row, column)</code>	Reads a comma-separated value formatted file beginning at the specified row and column. Remember: <ul style="list-style-type: none"> The file can contain only numeric values. Headers and other text must be deleted before using this command. The row and column arguments are zero based, so that <code>row = 0</code> and <code>col = 0</code> specify the first value in the file. <i>Example: <code>csvread('data.csv', 0, 1)</code></i>
<code>xlsread('filename')</code>	Reads data from the first worksheet in an Excel spreadsheet saved as an xls or.xlsx file.

Plotting Commands

Command & syntax	Purpose
<code>plot(x, y, 'linestyle_marker_color')</code>	Creates a two-dimensional line plot using vectors x and y. Formats the line according to the line specification string (linestyle, marker, and/or color).
<code>subplot(m, n, p)</code>	Creates axes in tiled positions in an m x n grid. Makes the p th axis active.
<code>figure()</code>	Creates a new figure object
<code>hold on</code> <code>hold off</code>	Controls whether MATLAB clears the current plot on a graph when running additional plotting commands (hold off) or adds new plot to an existing graph (hold on).

Line Specifiers

Lines

Specifier	Line Style
'-'	Solid line (default)
'--'	Dashed line
'.'	Dotted line
'-.'	Dash-dot line

Markers

Specifier	Marker Type
'+'	Plus sign
'o'	Circle
'*'	Asterisk
'.'	Point
'x'	Cross
'square' or 's'	Square
'diamond' or 'd'	Diamond
'^'	Upward-pointing triangle
'v'	Downward-pointing triangle
'>'	Right-pointing triangle
'<'	Left-pointing triangle
'pentagram' or 'p'	Five-pointed star (pentagram)
'hexagram' or 'h'	Six-pointed star (hexagram)

Colors

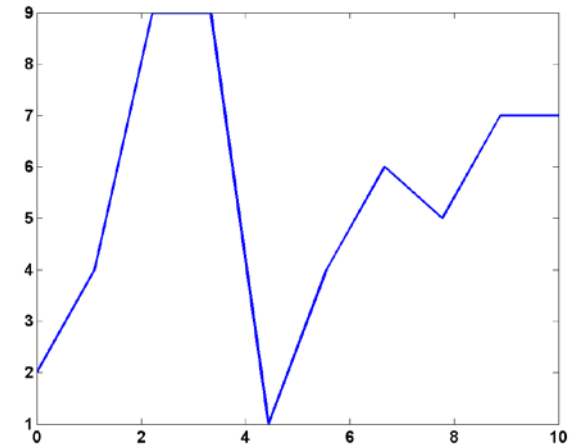
Specifier	Color
r	Red
g	Green
b	Blue
c	Cyan
m	Magenta
y	Yellow
k	Black
w	White

Plot Formatting Commands

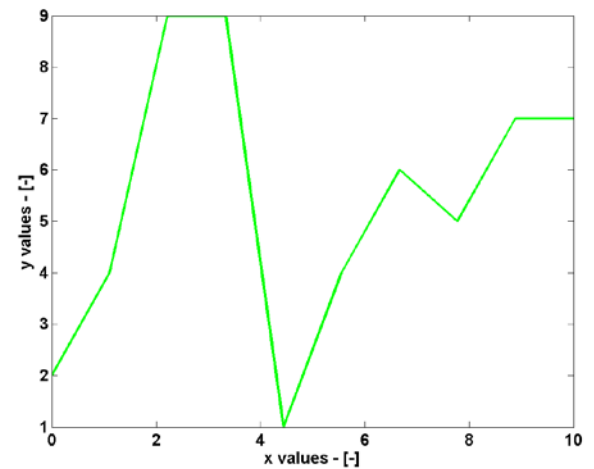
Command & syntax	Purpose
<code>title('title')</code>	Adds the string specified as the plot title
<code>xlabel('label')</code> <code>ylabel('label')</code>	Labels the x or y axis with the specified string
<code>legend('string1', 'string2', ...)</code>	Adds a legend to a plot in the order of the string specified in the command
<code>grid on</code> <code>grid off</code>	Adds or removes grid lines to or from the current axes
<code>axis([xmin xmax ymin ymax])</code>	Sets the limits for the x and y axes of the current axes

Example Plots

```
plot(x,y)      %plot x vs. y (default plot)
```



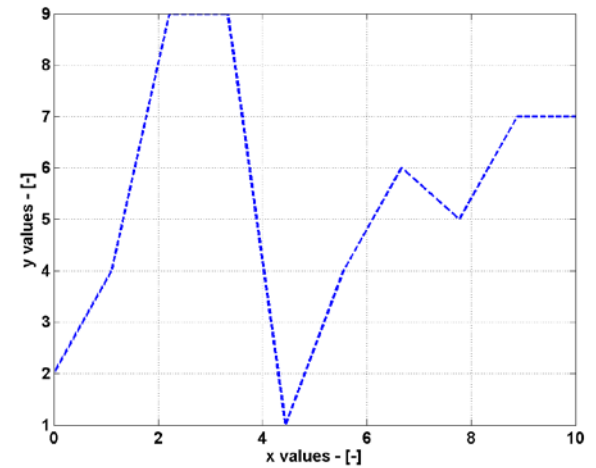
```
plot(x,y,'g-')      %plot data using green solid line  
xlabel('x values - [-]') %add label to x axis  
ylabel('y values - [-]') %add label to y axis
```



```

plot(x,y,'--')           %plot data using dashed line
xlabel('x values - [-]') %add label to x axis
ylabel('y values - [-]') %add label to y axis
grid on                  %turn the grid on

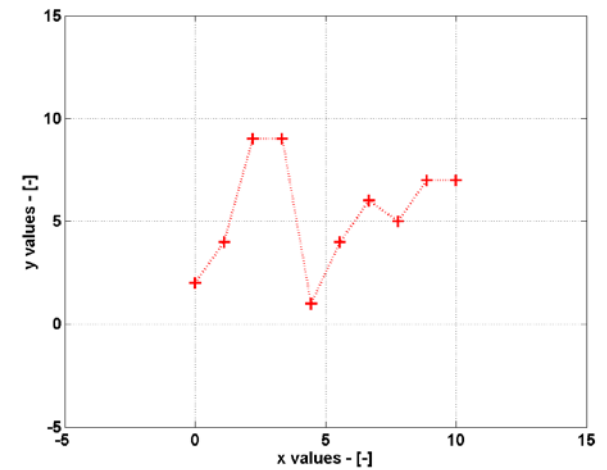
```



```

plot(x,y,'r:+')          %plot data in red dotted line w/ + markers
xlabel('x values - [-]') %add label to x axis
ylabel('y values - [-]') %add label to y axis
grid on                  %turn the grid on
axis([-5 15 -5 15])      %set the axes limits

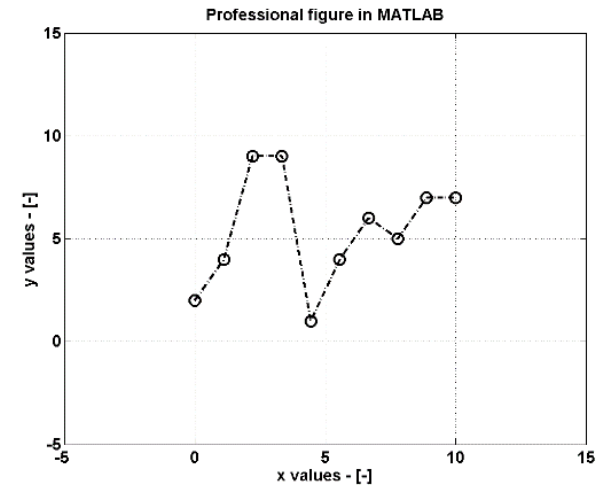
```



```

plot(x,y,'k-.o') %plot data w/ black dashed line w/ o markers
xlabel('x values - [-]') %add label to x axis
ylabel('y values - [-]') %add label to y axis
grid on %turn the grid on
axis([-5 15 -5 15]) %set the axes limits
title('Professional figure in MATLAB') %add title

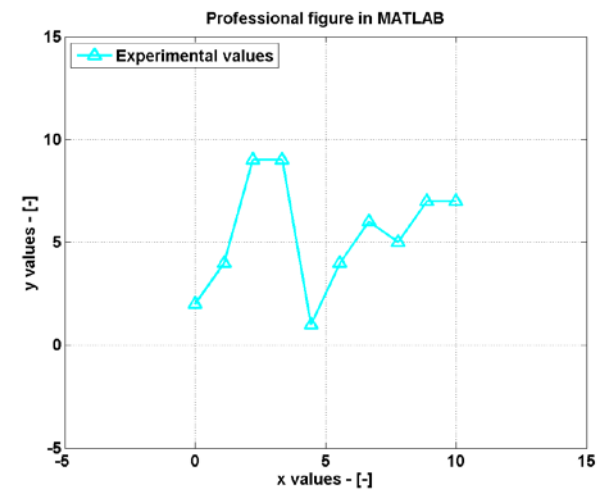
```



```

plot(x,y,'c-^') %plot data w/ cyan solid line w/ ^ markers
xlabel('x values - [-]') %add label to x axis
ylabel('y values - [-]') %add label to y axis
grid on %turn the grid on
axis([-5 15 -5 15]) %set the axes limits
legend('Experimental values','Location','NorthWest') %add legend
title('Professional figure in MATLAB') %add title

```



```

plot(x,y,'ys')      %plot data w/ yellow line w/ square markers
axis([-5 15 -5 15]) %set the axes limits
hold on             % specifies that following graphing
                    % commands add to the existing graph
plot(x2,y2,'r-d')   %plot second data set w/ red line w/
                    % diamond markers
xlabel('x values - [-]') %add label to x axis
ylabel('y values - [-]') %add label to y axis
grid on             %turn the grid on
legend('Experimental values','Computational Values','Location','NorthWest') %add legend
title('Professional figure in MATLAB') %add title

```

