



Modelización y Simulación Computacional de Materiales 2016

Matlab: entrada-salida

The screenshot displays the MATLAB 7.12.0 (R2011a) interface. The Help window is open, showing the documentation for the `load` function. The Command Window shows a list of files in the current directory: `walker.m`, `stepcount.m`, `smd.m`, `randomstep.m`, and `plotframe.m`. The Workspace window displays a table of data with 11 rows and 8 columns. The Command Window also shows the execution of the `load` function and the plotting of the data.

Help Window: load

There are other functions or methods named `load`: `distcomp/load`, `matlab/com/load`, `matlab/serial/load`.

Syntax

```
S = load(filename)
S = load(filename, variables)
S = load(filename, '-mat', variables)
S = load(filename, '-ascii')
```

Description

`S = load(filename)` loads the variables from a MAT-file array, or data from an ASCII file into a double-precision array.

`S = load(filename, variables)` loads the specified MAT-file.

`S = load(filename, '-mat', variables)` forces `load` to as a MAT-file, regardless of the extension. Specifying variables forces `load` to load only the specified variables.

`S = load(filename, '-ascii')` forces `load` to treat the file, regardless of the extension.

`load(...)` loads without combining MAT-file variables into an array.

`load(...)` is the command form of the syntax for convenient loading from the command line.

Command Window

```
>> load('ccm-19x19-1.dat');
```

Workspace Window

	1	2	3	4	5	6	7	8
1	1	1	1.000000	0.000000	-1	0	1.000000	1.000000
2	1	2	0.000000	0.000000	1	0	0.000000	0.000000
3	1	3	1.000000	0.000000	-1	0	1.000000	1.000000
4	1	4	1.000000	1.000000	0	-1	2.000000	2.000000
5	1	5	1.000000	0.000000	0	1	1.000000	1.000000
6	1	6	2.000000	0.000000	-1	0	4.000000	4.000000
7	1	7	2.000000	1.000000	0	-1	5.000000	5.000000
8	1	8	2.000000	0.000000	0	1	4.000000	4.000000
9	1	9	2.000000	1.000000	0	-1	5.000000	5.000000
10	1	10	2.000000	0.000000	0	1	4.000000	4.000000
11	1	11	2.000000	1.000000	0	-1	5.000000	5.000000

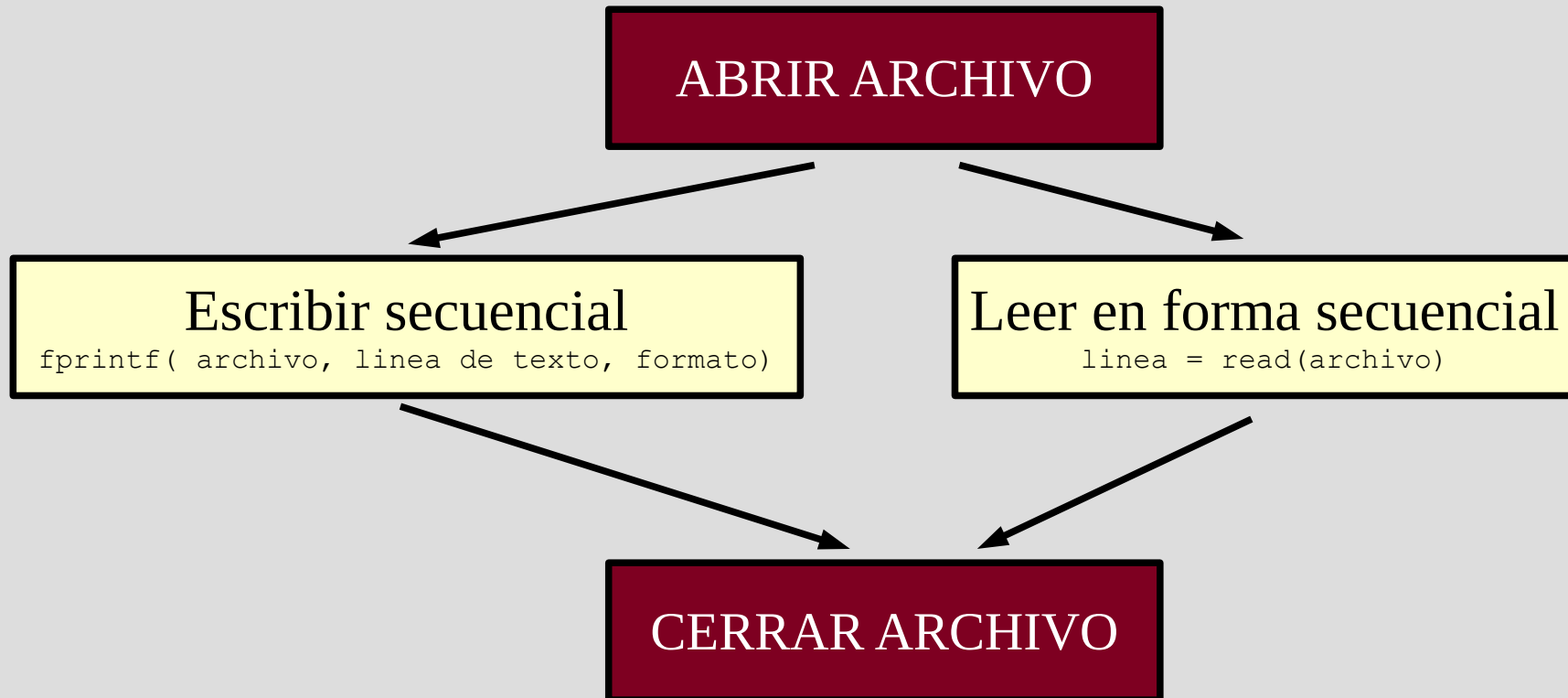
Command Window

```
>> plot(S(:,2),S(:,8));
>> grid on
>> plot(S(:,2),S(:,8),'k');
>> grid on
```



Input-Output / Entrada-Salida

Estructura IO





MATLAB

IO - Básicos

Manejo de Archivos

Abrir archivo existente

Archivo abierto ok

Abrir archivo inexistente

Error

Abrir archivo inexistente

Archivo abierto ok

```
Command Window
>> fid=fopen('data.dat','r')
fid =
    3
>> fid=fopen('data2.dat','r')
fid =
   -1
>> fid=fopen('data2.dat','w')
fid =
    4
fx >> |
```



MATLAB

IO - Básicos

Escribir línea por línea

```
Command Window
>> fid=fopen('data.dat','w');
>> fprintf(fid,' %10.8f ',exp(1));
>> fprintf(fid,'\r\n %10.8f ',pi);
>> fprintf(fid,' %10.8f ',pi);
>> fclose(fid);
fx >>
```

Escribir con formato de punto flotante

Escribir con retorno de carro

Escribir con formato de punto flotante

```
Editor - /home/mariano/Documents/modelizaci...
1 2.71828183
2 3.14159265 3.14159265 |
```



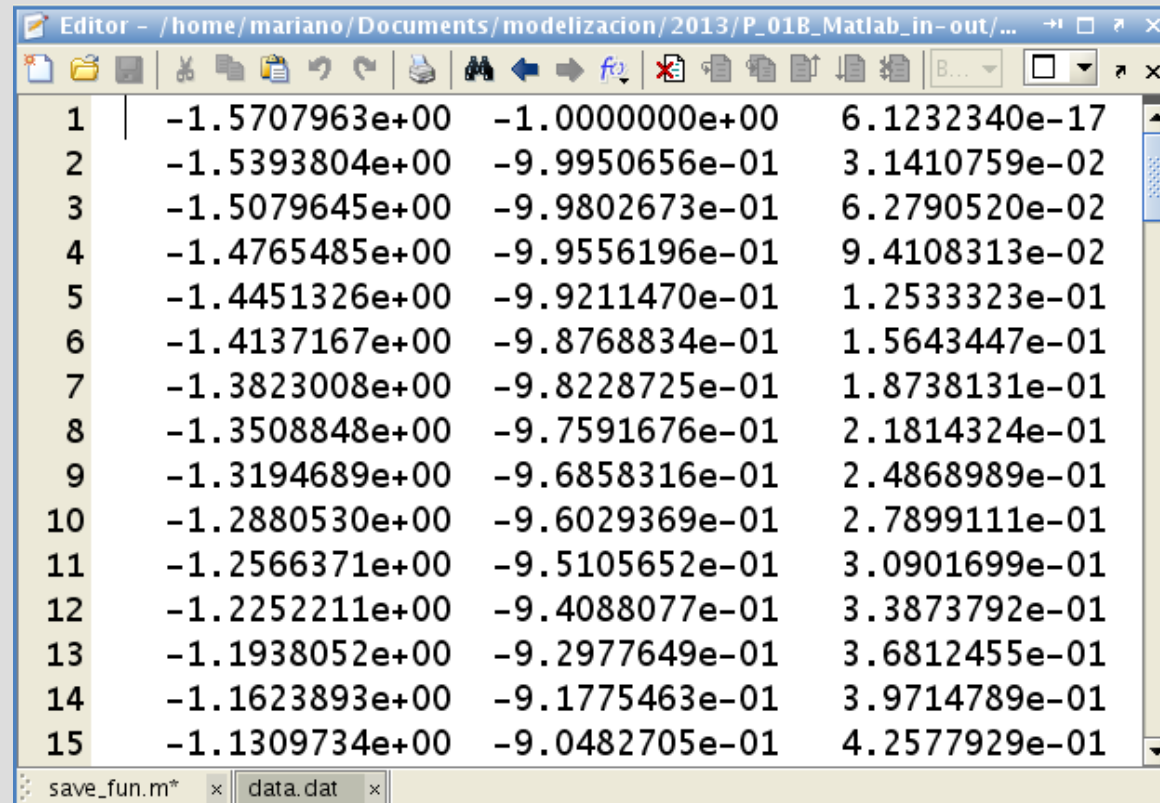
MATLAB

IO - Básicos

Escribir la matriz entera

```
Command Window
>> x=[-pi/2:pi/100:pi/2]';
>> z=cos(x);
>> y=sin(x);
>> q = [ x y z ];
>> save('data.dat','q','-ascii')
fx >> |
```

Guardar la variable q en formato ascii en el archivo dado.



1	-1.5707963e+00	-1.0000000e+00	6.1232340e-17
2	-1.5393804e+00	-9.9950656e-01	3.1410759e-02
3	-1.5079645e+00	-9.9802673e-01	6.2790520e-02
4	-1.4765485e+00	-9.9556196e-01	9.4108313e-02
5	-1.4451326e+00	-9.9211470e-01	1.2533323e-01
6	-1.4137167e+00	-9.8768834e-01	1.5643447e-01
7	-1.3823008e+00	-9.8228725e-01	1.8738131e-01
8	-1.3508848e+00	-9.7591676e-01	2.1814324e-01
9	-1.3194689e+00	-9.6858316e-01	2.4868989e-01
10	-1.2880530e+00	-9.6029369e-01	2.7899111e-01
11	-1.2566371e+00	-9.5105652e-01	3.0901699e-01
12	-1.2252211e+00	-9.4088077e-01	3.3873792e-01
13	-1.1938052e+00	-9.2977649e-01	3.6812455e-01
14	-1.1623893e+00	-9.1775463e-01	3.9714789e-01
15	-1.1309734e+00	-9.0482705e-01	4.2577929e-01



MATLAB

IO - Básicos

Leer Archivos por línea

```
Command Window
>> fid=fopen('data.dat','r');
>> linea = fgetl(fid)
linea =
-1.5707963e+00 -1.0000000e+00 6.1232340e-17
>> [ x y z ] = strread(linea)
x =
-1.5708
y =
-1
z =
6.1232e-17
fx >>
```

Leer línea de archivo, en forma secuencial.
Guardar la cadena de caracteres en la variable `linea`

Separar las columnas de `linea` y convertir a números reales `x y z`.

1	-1.5707963e+00	-1.0000000e+00	6.1232340e-17
2	-1.5393804e+00	-9.9950656e-01	3.1410759e-02
3	-1.5079645e+00	-9.9802673e-01	6.2790520e-02
4	-1.4765485e+00	-9.9556196e-01	9.4108313e-02
5	-1.4451326e+00	-9.9211470e-01	1.2533323e-01
6	-1.4137167e+00	-9.8768834e-01	1.5643447e-01
7	-1.3823008e+00	-9.8228725e-01	1.8738131e-01
8	-1.3508848e+00	-9.7591676e-01	2.1814324e-01
9	-1.3194689e+00	-9.6858316e-01	2.4868989e-01
10	-1.2880530e+00	-9.6029369e-01	2.7899111e-01
11	-1.2566371e+00	-9.5105652e-01	3.0901699e-01
12	-1.2252211e+00	-9.4088077e-01	3.3873792e-01
13	-1.1938052e+00	-9.2977649e-01	3.6812455e-01
14	-1.1623893e+00	-9.1775463e-01	3.9714789e-01
15	-1.1309734e+00	-9.0482705e-01	4.2577929e-01



MATLAB

IO - Básicos

Cargar archivo entero

Cargar archivo entero. Separa las columnas, pero debe haber solo datos y todas las líneas con el mismo número de columnas. Notar que toma los % como comentarios.

```
Command Window
>> data = load('data.dat')
data =
-1.5708    -1.0000         0         0
-1.5394    -0.9995     0.0314    -0.0157
-1.5080    -0.9980     0.0628    -0.0313
-1.4765    -0.9956     0.0941    -0.0468
-1.4451    -0.9921     0.1253    -0.0622
-1.4137    -0.9877     0.1564    -0.0773
-1.3823    -0.9823     0.1874    -0.0920
-1.3509    -0.9759     0.2181    -0.1064
-1.3195    -0.9686     0.2487    -0.1204
-1.2881    -0.9603     0.2790    -0.1340
-1.2566    -0.9511     0.3090    -0.1469
-1.2252    -0.9409     0.3387    -0.1594
-1.1938    -0.9298     0.3681    -0.1711
-1.1624    -0.9178     0.3971    -0.1822
-1.1310    -0.9048     0.4258    -0.1926
-1.0996    -0.8910     0.4540    -0.2023
-1.0681    -0.8763     0.4818    -0.2111
-1.0367    -0.8607     0.5090    -0.2191
-1.0053    -0.8443     0.5358    -0.2262
-0.9739    -0.8271     0.5621    -0.2324
-0.9425    -0.8090     0.5878    -0.2378
-0.9111    -0.7902     0.6129    -0.2421
```

```
Editor - /home/mariano/Documents/modelizacion/2012/P_018_Matlab_in-out/data.dat
1 % x y
2 %%%%%%%%%%
3
4 -1.57079633    -1.00000000    0.00000000    -0.00000000
5 -1.53938040    -0.99950656    0.03141076    -0.01569763
6 -1.50796447    -0.99802673    0.06279052    -0.03133331
7 -1.47654855    -0.99556196    0.09410831    -0.04684533
8 -1.44513262    -0.99211470    0.12533323    -0.06217247
9 -1.41371669    -0.98768834    0.15643447    -0.07725425
10 -1.38230077    -0.98228725    0.18738131    -0.09203114
11 -1.35088484    -0.97591676    0.21814324    -0.10644482
12 -1.31946891    -0.96858316    0.24868989    -0.12043842
13 -1.28805299    -0.96029369    0.27899111    -0.13395670
```