Excel in MatDeck

MatDeck has an incorporated range of functions and tools that can be used for simple and fast data exchange with Excel spreadsheets.
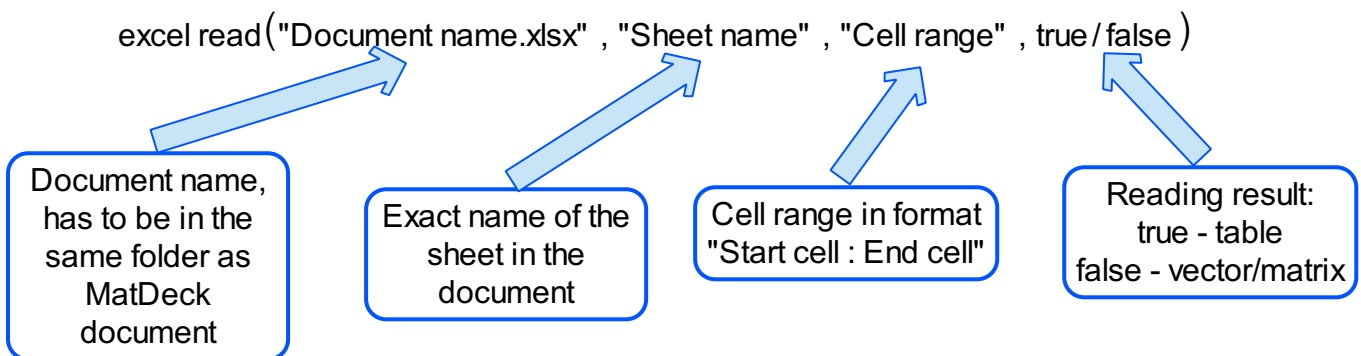
We can divide them into two groups:
- Functions for the exchange of Excel data
- Graphical objects for the exchange of Excel data

When we talk about the first group, you have the following functions at your disposal:

Excel read - with this function you can read the data stored in ah Excel document and place them in a MatDeck variable, ready for further use; The function ,Excel read's syntax is:

$$\text{excel read}\left(\text{"Document name.xlsx"} , \text{"Sheet name"} , \text{"Cell range"} , \text{true}/\text{false}\right)$$

Document name, has to be in the same folder as MatDeck document	Exact name of the sheet in the document	Cell range in format "Start cell : End cell"	Reading result: true - table false - vector/matrix

For example:

	A	B	C	D	E	F
1	1	9	6	3	1	6
2	2	8				
3	3	7				
4	4	6				
5	5	5				
6	6	4				
7	7	3				
8	8	2				
9	9	1				

$$a := \text{excel read}\left(\text{"Example data.xlsx"} , \text{"Sheet1"} , \text{"A1:F1"} , \text{false}\right)$$

$$a = \begin{bmatrix} 1 & 9 & 6 & 3 & 1 & 6 \end{bmatrix}$$

$$b := \text{excel read}\left(\text{"Example data.xlsx"} , \text{"Sheet1"} , \text{"A1:B2"} , \text{true}\right)$$

$$b = \begin{bmatrix} 2 & 8 \end{bmatrix}$$

Excel write - with this function you can write the data from a MatDeck document to an Excel document; Function, excel write's syntax is:

excel write("Document name.xlsx" , "Sheet name" , "Cell" , Value to write)

Document name, use Ctrl + Pointer to open Menu

Exact name of the sheet in the document

Start cell which you write data from

Value to write in to excel document
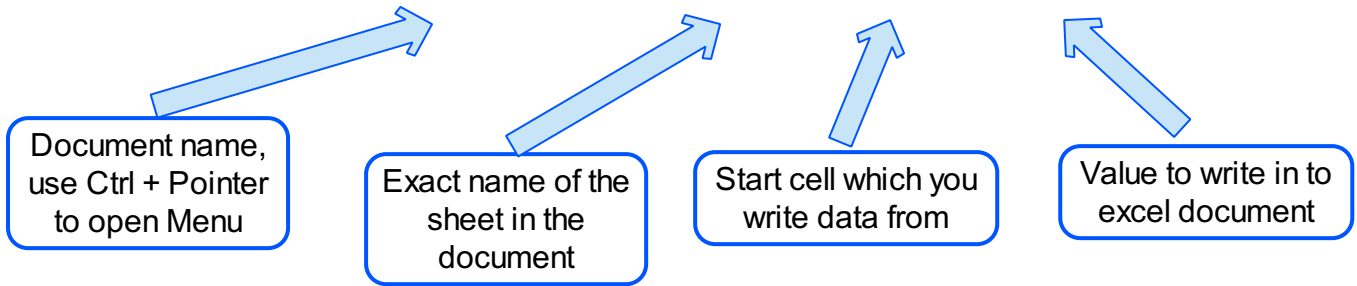
For example, if there is data is stored in variable b:

$$b := \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$$

excel write("Example data.xlsx" , "Sheet2" , "B2" , b)

	A	B	C	D
1				
2		1	2	3
3		4	5	6
4				
5				
6				

Sheet1 Sheet2

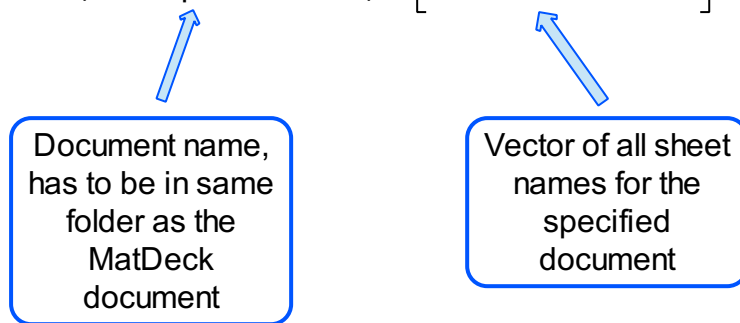As a last argument you can place any numerical value, vector, matrix or variable.

Excel cell - use this function as a help function to determine the excel cell name based on the number of rows and columns; This is a useful tool to create a third argument value for the excel write function.

excel cell(5 , 6) = "F5"

Fifth row

Sixth column
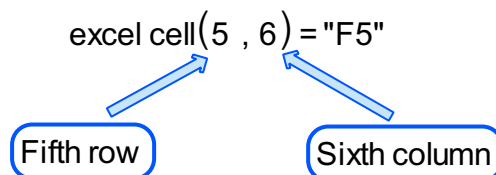
excel write("Example data.xlsx" , "Sheet2" , excel cell(5 , 6) , 15.8)

Excel sheets - use this function when you want to preview the names of all the sheets in the specified document

$$\text{excel sheets}(\text{"Example data.xlsx"}) = \begin{bmatrix} \text{"Sheet1"} & \text{"Sheet2"} \end{bmatrix}$$

Document name, has to be in same folder as the MatDeck document

Vector of all sheet names for the specified document

Use the results of this function to insert the sheet name in excel read and excel write functions, for example:

$$\text{excel read}\Big(\text{"Example data.xlsx"}, \text{excel sheets}(\text{"Example data.xlsx"})[0], \text{"A1:A3"}, \text{false}\Big)$$

$$\text{excel read}\Big(\text{"Example data.xlsx"}, \text{excel sheets}(\text{"Example data.xlsx"}), \text{"C2"}, 5\Big)$$

$$\text{excel sheets}(\text{"Example data.xlsx"})[0] = \text{"Sheet1"}$$
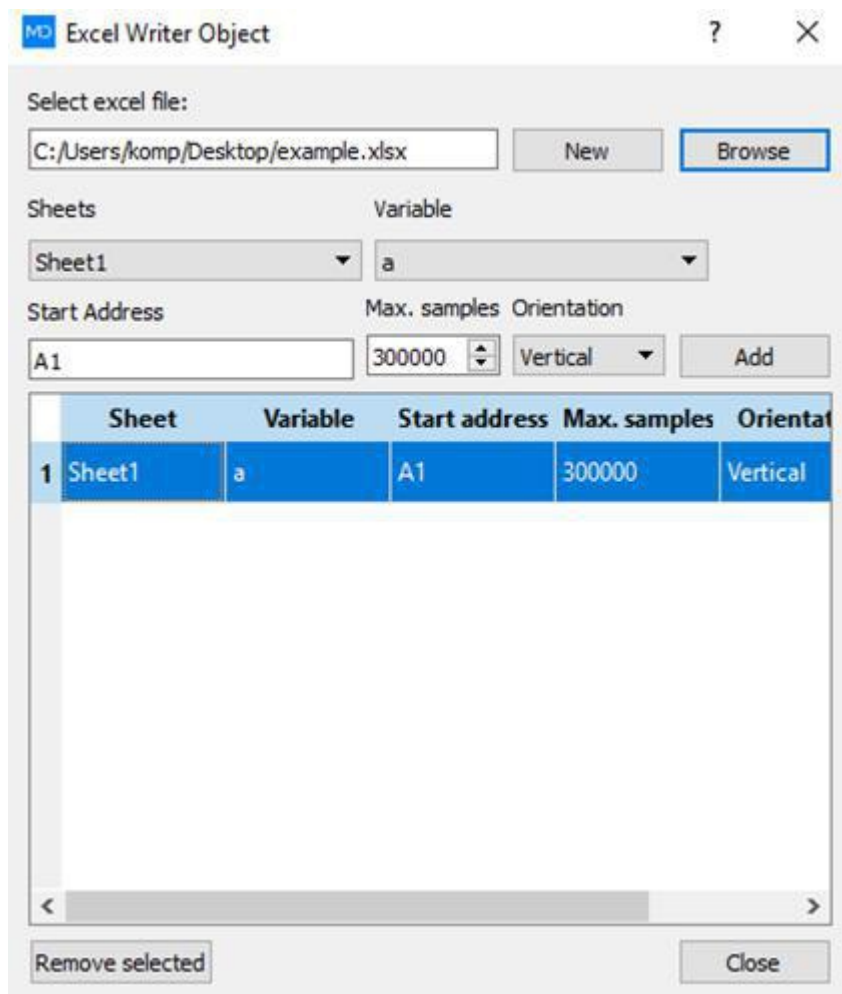
Graphical objects for manipulations of Excel data are:

Export to excel - To create this object, press the Export icon from the Data tab and click on the position on the canvas where you would like to place it. Pressing the right mouse button opens the contents menu from which you should choose the Properties option.

Press New and select a folder where you want to create a new excel file or press Browse to select an existing excel document in which you want to export the data. Select a Sheet from the drop down menu and the variable which's data you are exporting (a list of variables will contain all the variables created in the current document), in Starting Address, type the number of the excel cell from which the data will be written and select Max. Samples value. We suggest leaving this value to the default one.

Select Orientation and press the Add button. A new row will appear in the table of connected variables where you can view all the parameters set in this window.

To remove a variable connection from the table, select the row you want to remove and press the Remove selected button.

Export data properties window

Import from Excel - To create this object press the Import icon from the Data tab and click on the position in the canvas where you would like to place it. Pressing the right mouse button opens the content menu from which you should choose the Properties option.
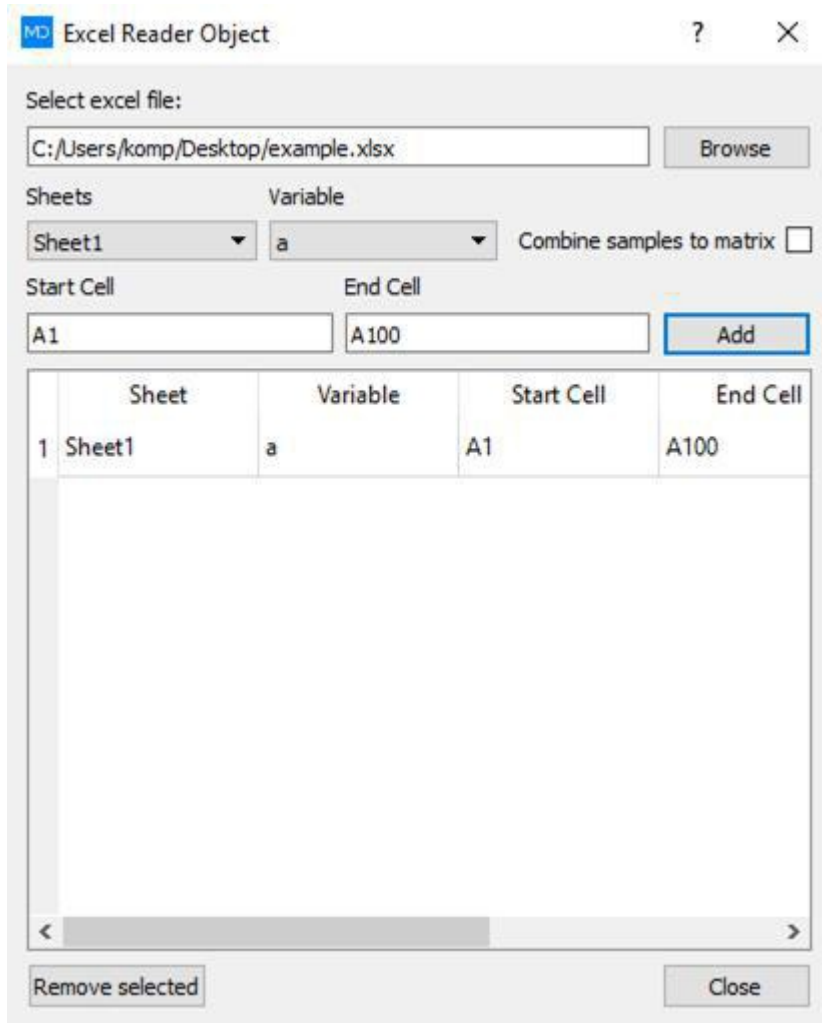

Open the drop down menu. Press *Browse* and select the excel document from which you want to import data. From the drop down menu, *Sheets,* select the one that will contain the data you want to import, select a variable in which the data will be placed (list of variables will contain all the variables created in the current document).

Insert the range where data is to be placed in the excel document (*Start* and *End Cell*), this range specifies the size of the variable after the insertion of data and then press the _Add_ button. A new row will appear in the table of connected variables where you can view all parameters which are set in this window.

If you want to insert several rows/columns from an excel document to a variable select the option, _Combine samples to single matrix. You_ will have to specify the range of every row/column of data you are inserting and add it in the table of connections. Don't forget to choose the same destination variable when you add the connections.

To remove a variable connection from a table, select the row you want to remove and press the Remove selected button.

Import data properties window