

## Time series module

This module, like the others, aims to help you in the analysis that you require in your work, offering all the potential that the R language has.

### Considerations when using the module

When using this functionality, you must verify that the BERT Add-in is installed correctly and that the R engine is installed. In the section on common errors you can find more about this topic.

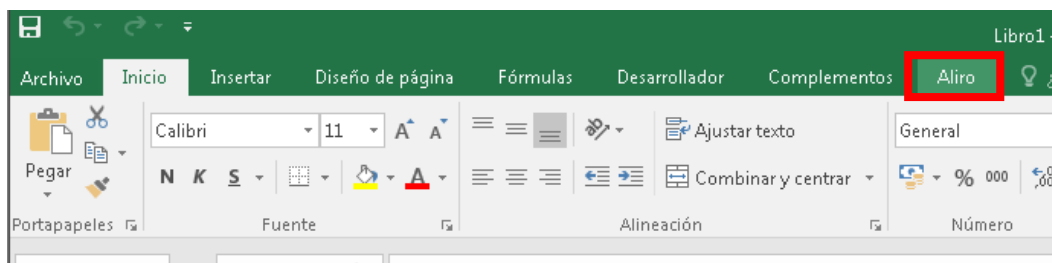
This tool is aimed at people with a little (or minimum) knowledge of the types of analysis to be performed, so if the user does not know them, it will be a good idea to study them before use.

### How use this module

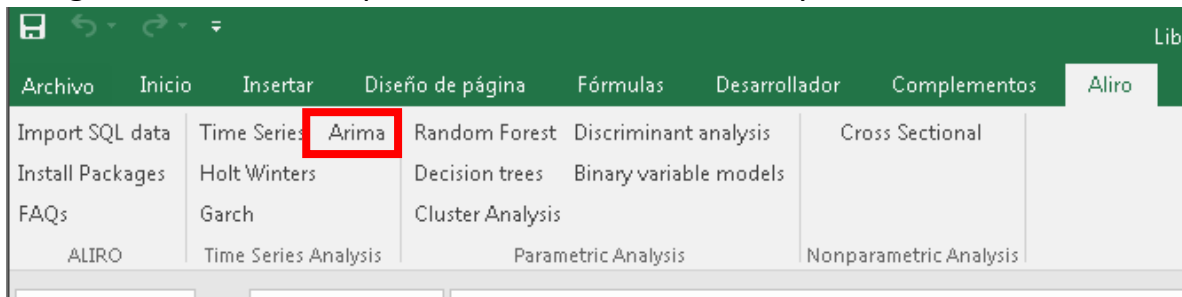
These instructions work the same for all the types of analysis that the ALIRO tool presents, with the differences of parameters that each method has, for this reason it is important that the user knows the method that he wishes to use.

### Open the windows

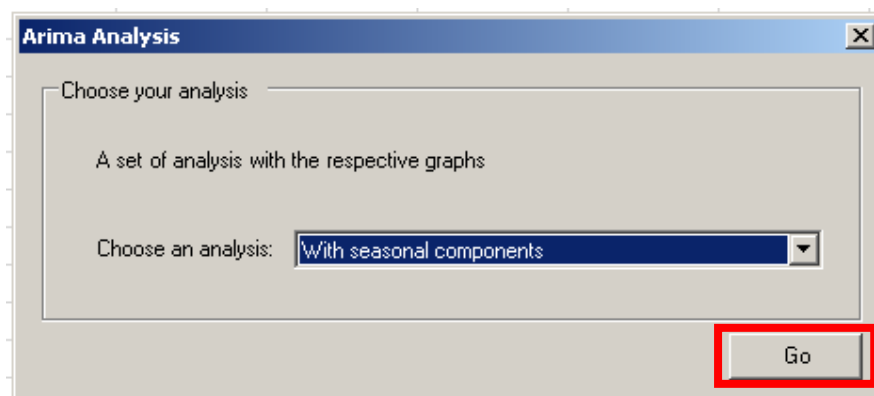
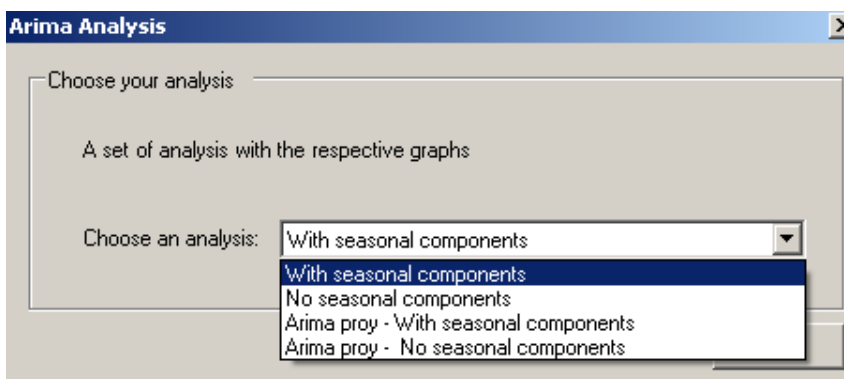
The first step once Microsoft Excel is open is to go to the ALIRO tab, which is at the top.



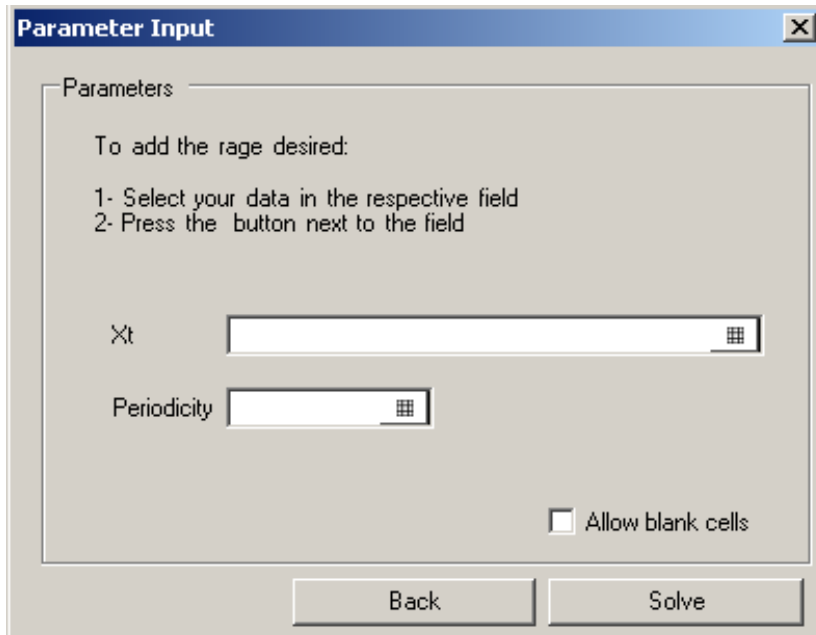
Here you will find the different options offered by the Add-in, at this time we will go to the "Arima" option in the Time Series Analysis section.



Pressing the option will load the window with the variants of the method, here you should only select the one you want to use and click on the "Go" button.

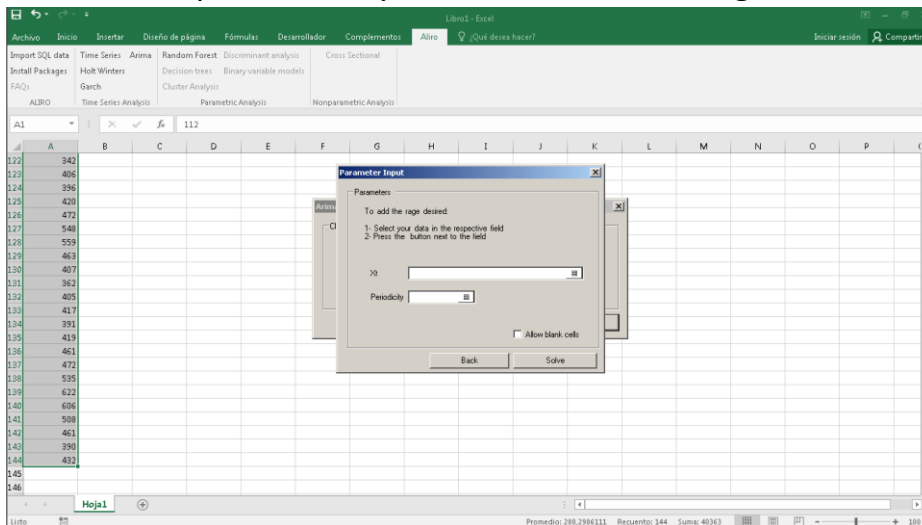


Then a new window will appear where you must select the range of data you want to analyze and the different parameters that the method needs. For this particular case, the Arima method with a seasonal component was selected, so the input parameters are the range and period of the data.

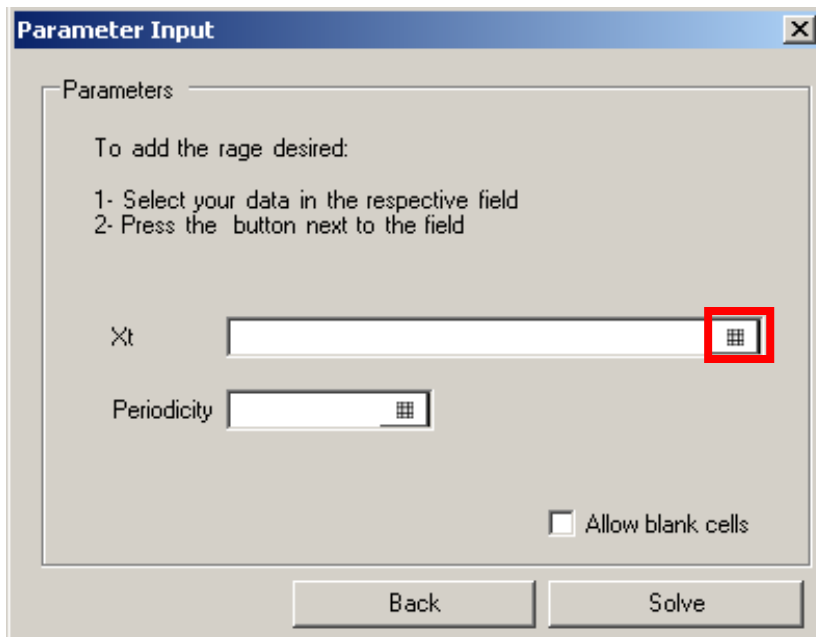


The image shows a 'Parameter Input' dialog box with a title bar containing a close button. The main area is titled 'Parameters' and contains the following text: 'To add the rage desired:' (note the typo), followed by a numbered list: '1- Select your data in the respective field' and '2- Press the button next to the field'. Below this, there are two input fields: 'Xt' and 'Periodicity', each with a small grid icon to its right. At the bottom right, there is a checkbox labeled 'Allow blank cells'. At the bottom of the dialog, there are two buttons: 'Back' and 'Solve'.

Now in the spreadsheet you must select the range of data to be evaluated.

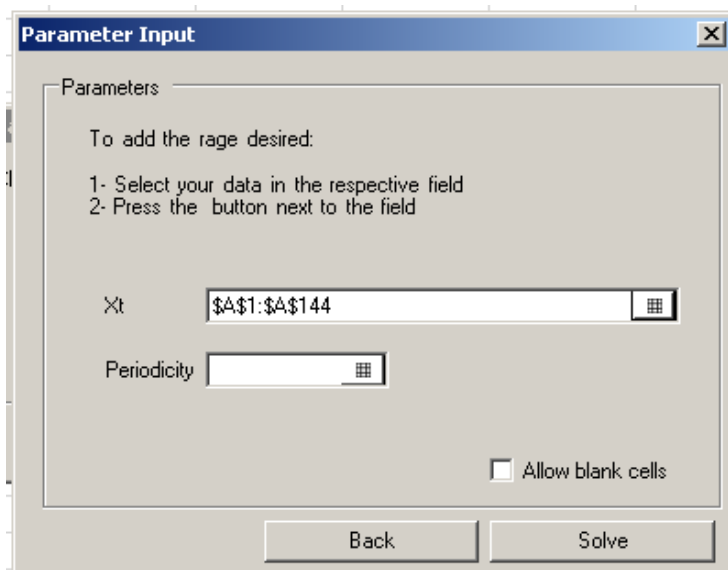


Now in the window again we proceed to press the button next to the text field that says Xt.



The image shows a 'Parameter Input' dialog box. It has a title bar with a close button. Inside, there's a 'Parameters' section with instructions: 'To add the rage desired: 1- Select your data in the respective field 2- Press the button next to the field'. Below this, there are two text input fields. The first is labeled 'Xt' and is empty. To its right is a small square button with a grid icon, which is highlighted by a red rectangular box. The second field is labeled 'Periodicity' and is also empty, with a similar grid button to its right. At the bottom right, there is a checkbox labeled 'Allow blank cells' which is unchecked. At the bottom, there are two buttons: 'Back' and 'Solve'.

Once this is done in the text field, the data range will be loaded.



This image shows the same 'Parameter Input' dialog box as before, but now the 'Xt' text field contains the data range '\$A\$1:\$A\$144'. The grid selection button next to it is still present. The 'Periodicity' field and the 'Allow blank cells' checkbox remain unchanged. The 'Back' and 'Solve' buttons are still at the bottom.

Now for the periodicity, proceed to do the same, select the cell in the spreadsheet and press the button next to the text field that says periodicity

Libro1 - Excel

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	A	B	C	D	E	F	G	H	I	J	K	L
1	112											
2	118											
3	132		Periodicity									
4	129		12									
5	121											
6	135											
7	148											
8	148											
9	136											
10	119											
11	104											
12	118											
13	115											
14	126											
15	141											
16	135											
17	125											

**Parameter Input**

Parameters

To add the rage desired:

1- Select your data in the respective field  
2- Press the button next to the field

Xt: \$A\$1:\$A\$144

Periodicity: \$C\$4

☐ Allow blank cells

Back Solve

Before finalizing we select the option to allow blank cells and proceed to click on the solve button.

Parameter Input

Parameters

To add the rage desired:

1- Select your data in the respective field  
2- Press the button next to the field

Xt

Periodicity

☒ Allow blank cells

Back Solve

After waiting a bit in the spreadsheet the graph will appear with the analysis already done.

