

Concept: Spreadsheet Example VI

Goal

Save a 2D array in a text file so a spreadsheet application can access the file and explore how to display numeric data in a table.

Description

Complete the following steps to examine a VI that saves numeric arrays to a file in a format you can access with a spreadsheet.

Implementation

The files that you need to complete this exercise are here: <NI eLearning>\LV Core 1\Understand File I_O_1\Exercise.

1. Open the Spreadsheet Example VI located in the <Exercise> directory. The following front panel window is already built.

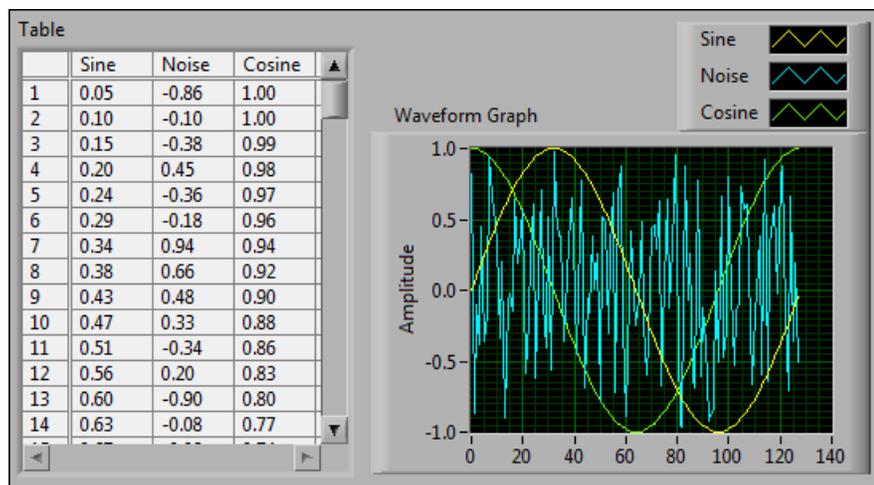


Figure 1. Spreadsheet Example VI Front Panel

2. Run the VI.

The VI generates a 2D array of 128 rows \times 3 columns. The first column contains data for a sine waveform, the second column contains data for a noise waveform, and the third column contains data for a cosine waveform.

The VI plots each column in a graph and displays the data in a table.

3. When the **Choose file to write** dialog box appears, save the file as `wave.txt` in the <Exercise> directory and click the **OK** button. Later, you will examine this file.

4. Display and examine the block diagram for this VI.

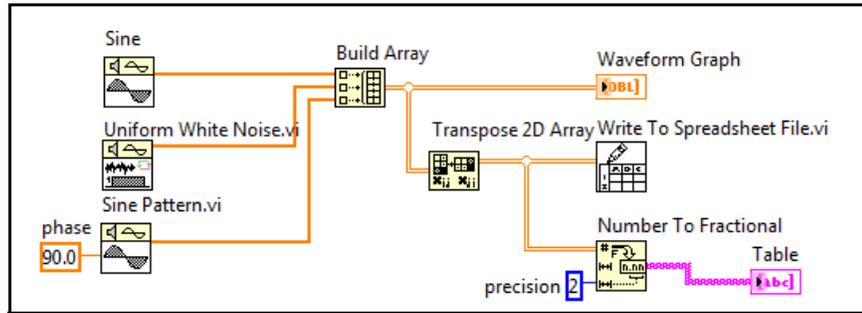


Figure 2. Completed Creating a SubVI Block Diagram



The Sine Pattern VI returns a numeric array of 128 elements containing a sine pattern. The constant 90.0, in the second instance of the Sine Pattern VI, specifies the phase of the sine pattern which generates the cosine pattern.

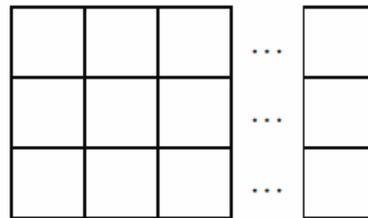


The Uniform White Noise VI returns a numeric array of 128 elements containing a noise pattern.



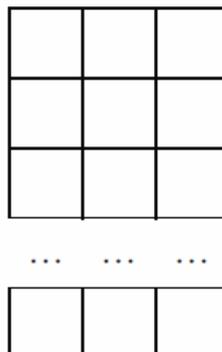
The Build Array function builds the following 2D array from the sine array, noise array, and cosine array.

Sine Array
Noise Array
Cosine Array



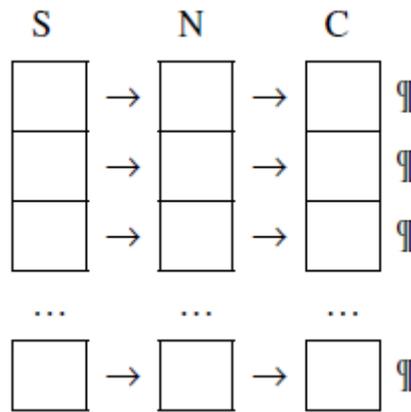
The Transpose 2D Array function rearranges the elements of the 2D array so element $[i, j]$ becomes element $[j, i]$, as follows.

S N C





The Write To Spreadsheet File VI formats the 2D array into a spreadsheet string and writes the string to a file. The string has the following format, where an arrow (→) indicates a tab, and a paragraph symbol (¶) indicates an end of line character.



The Number To Fractional String function converts an array of numeric values to an array of strings that the table displays.

5. Close the VI. Do not save changes.



Note This example stores only three arrays in the file. To include more arrays, increase the number of inputs to the Build Array function.

6. Open the `wave.txt` file using a word processor, spreadsheet application, or text editor and view its contents.
 - Open a word processor, spreadsheet application, or text editor, such as Notepad or WordPad.
 - Open `wave.txt`. The sine waveform data appear in the first column, the random waveform data appear in the second column, and the cosine waveform data appear in the third column.
7. Exit the word processor or spreadsheet application and return to LabVIEW.

End of Exercise

Notes
