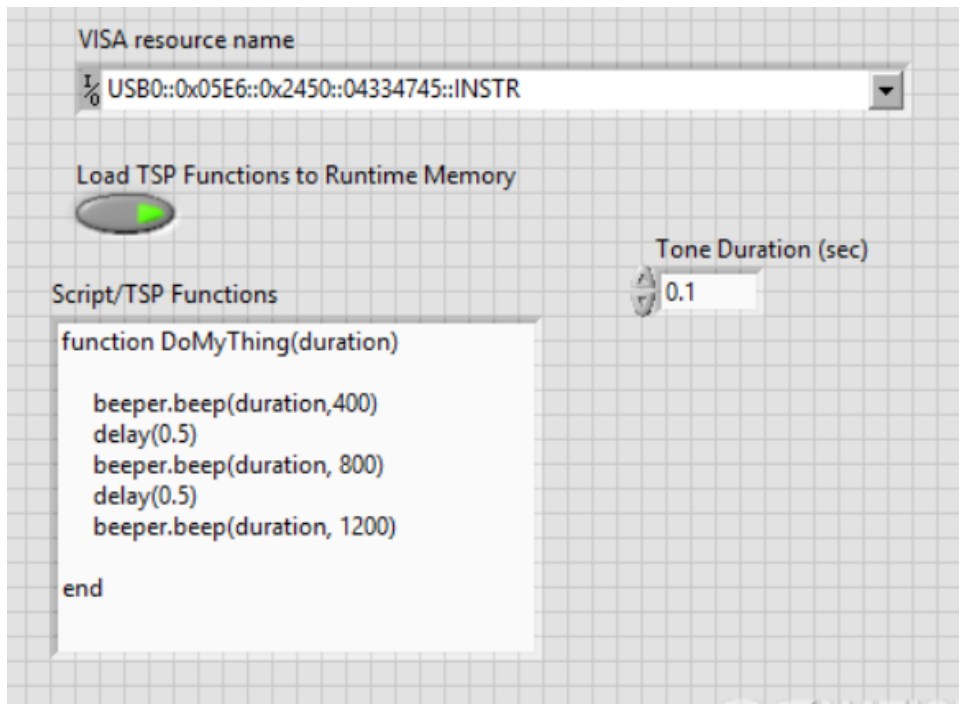# Using TSP Functions from LabVIEW

This document describes the high-level process for interacting with TSP based functions using VISA from LabVIEW.
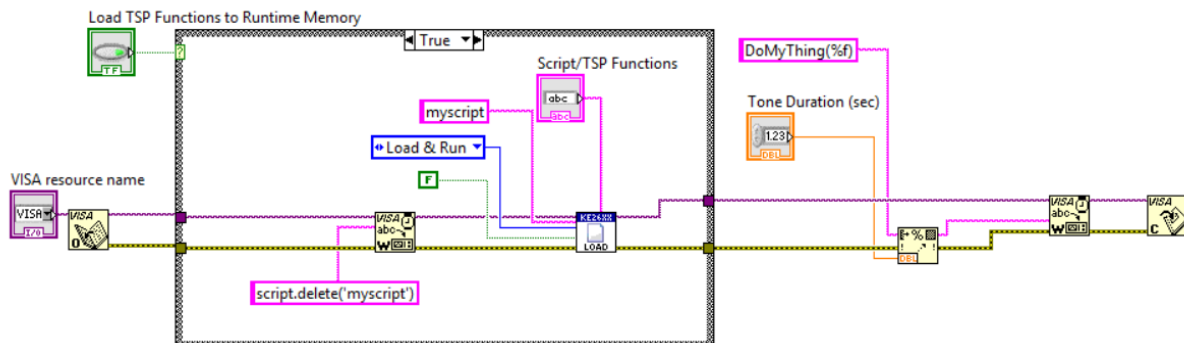
The function is very simple in scope and demonstrates use of parameters.

The function name: DoMyThing() with one parameter (duration) which controls how long each beep will last.

The front panel:

The block diagram:

Inside the True Case, there is a sub VI: Generic Load Script.

The details of the Generic Load Script VI are below. This is basically a pick line to pull the script content line by line and pass it to a VISA Write VI.

It is also sends a "loadscript myScript" at the beginning and sends an "endscript" after last line of the script. The 'myScript' is the name of the script which contains one or more defined functions.
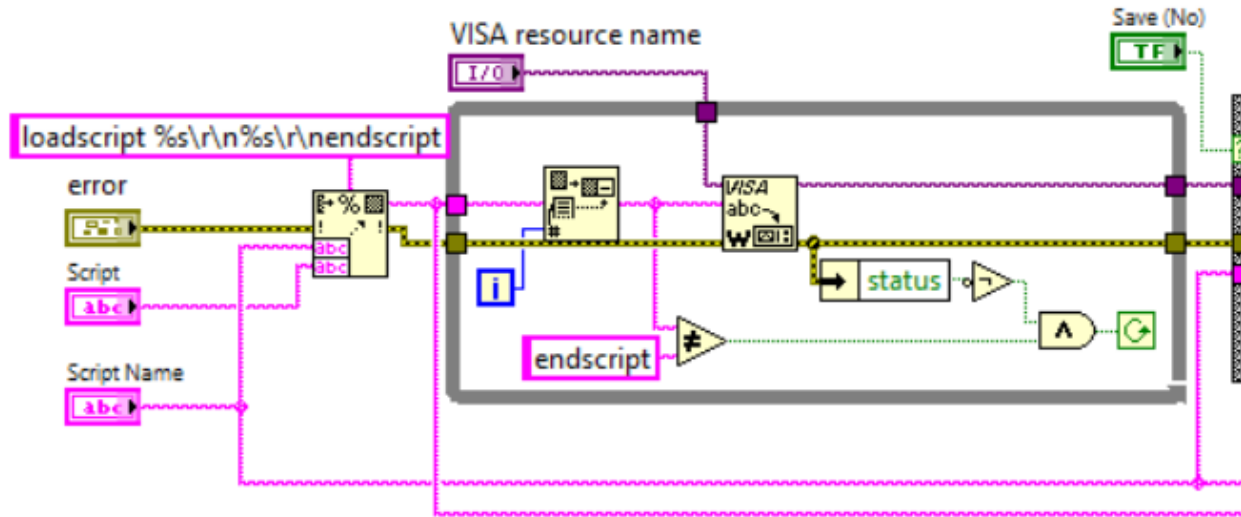
An NI IO Trace routine for this code:

Number	Description
1	viParseRsrc (0x10EC9360, "USB0::0x05E6::0x2450::04334745::INSTR", 7 (0x7), 0 (0x0))
2	VISA Open ("USB0::0x05E6::0x2450::04334745::INSTR", False, 0 (0x0), 0 (0x0), "USB0::0x05E6::0x2450::04334745::INSTR")
3	VISA Write ("USB0::0x05E6::0x2450::04334745::INSTR", "script.delete('myscript')")
4	VISA Write ("USB0::0x05E6::0x2450::04334745::INSTR", "loadscript myscript")
5	VISA Write ("USB0::0x05E6::0x2450::04334745::INSTR", "function DoMyThing(duration)")
6	VISA Write ("USB0::0x05E6::0x2450::04334745::INSTR")
7	VISA Write ("USB0::0x05E6::0x2450::04334745::INSTR", " beeper.beep(duration,400)")
8	VISA Write ("USB0::0x05E6::0x2450::04334745::INSTR", " delay(0.5)")
9	VISA Write ("USB0::0x05E6::0x2450::04334745::INSTR", " beeper.beep(duration, 800)")
10	VISA Write ("USB0::0x05E6::0x2450::04334745::INSTR", " delay(0.5)")
11	VISA Write ("USB0::0x05E6::0x2450::04334745::INSTR", " beeper.beep(duration, 1200)")
12	VISA Write ("USB0::0x05E6::0x2450::04334745::INSTR")
13	VISA Write ("USB0::0x05E6::0x2450::04334745::INSTR", "end")
14	VISA Write ("USB0::0x05E6::0x2450::04334745::INSTR", "endscript")
15	VISA Write ("USB0::0x05E6::0x2450::04334745::INSTR", "myscript.run()..")
16	VISA Write ("USB0::0x05E6::0x2450::04334745::INSTR", "DoMyThing(0.100000)")
17	VISA Close ("USB0::0x05E6::0x2450::04334745::INSTR")
18	viGetAttribute (0x10FF2278, 0x3FFF018F, VI_FALSE)
19	viGetAttribute (0x10FF2278, 0x3FFF018F, VI_FALSE)

The loading of the functions needs to happen only once. The script and any functions defined by it will stay resident in the runtime memory until the instrument is power cycled or the script is specifically deleted.
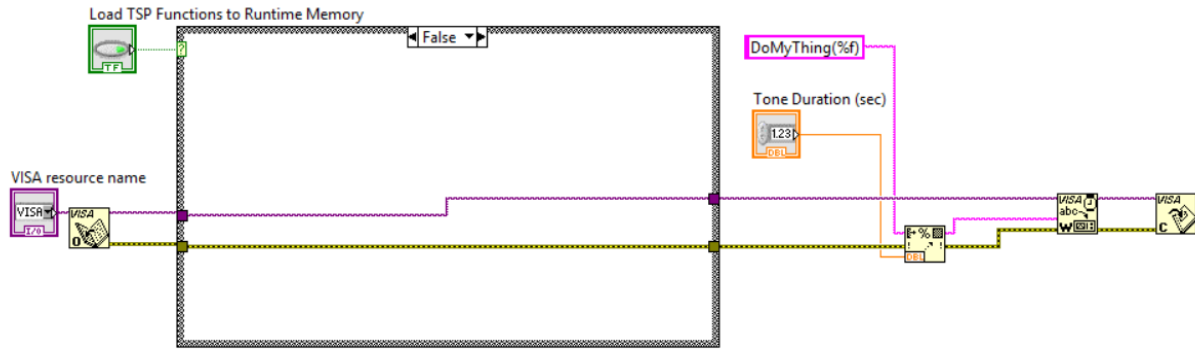
Here is an NI IO Trace for subsequent use of the already loaded function (without loading to runtime memory):

Number	Description
1	viParseRsrc (0x10EC9360, "USB0::0x05E6::0x2450::04334745::INSTR", 7 (0x7), 0 (0x0))
2	VISA Open ("USB0::0x05E6::0x2450::04334745::INSTR", False, 0 (0x0), 0 (0x0), "USB0::0x05E6::0x2450::04334745::INSTR")
3	VISA Write ("USB0::0x05E6::0x2450::04334745::INSTR", "DoMyThing(0.100000)")
4	VISA Close ("USB0::0x05E6::0x2450::04334745::INSTR")