Instructions for Running the ESC_Test Harness

Required equipment

- PXI
- Ni VST 5646

Required Software

- Windows 7 or higher
- LabVIEW 2017

Download the ESC_Test_Harness-master
Copy the up-zipped file to a computer hosting LabVIEW and PXI.

The initial run of the ESC Test Harness will convert the included waveforms from binary(.dat) to .tdms format prior to playing the waveforms. In this instance each of the four included waveforms will be converted. As a result, there will be a 60 second delay before the waveforms plays. Once each of the waveforms are converted to .tdms each file will play sequentially with no delay.

Starting the ESC Tester Start Python Server, start LabVIEW Web server and run web browser (Fire fox)

1) Locate and double click the "StartUp.bat" file located in the "ESC_Test_Harness-master" folder
    - The Python status window will appear as in figure 1.
    - The ESC_Server will appear as in figure 2a.

2) Start the ESC_Server by right clicking on the "v1" as in figure 2a. Select "Start" to initiate the session (figure 2b). You will see Debug Web service windows appears as in figure 3. Click "OK".
    - The ESC Test Harness interface will appear as in figure 4. Press "log in".
    - The default user name and password are "admin" and "default".

3) To stop the Python web server, select the running python screen. Select "Ctrl + C"
   To Stop the LabVIEW player right click on "v1" as in figure 2c. Select "Stop"

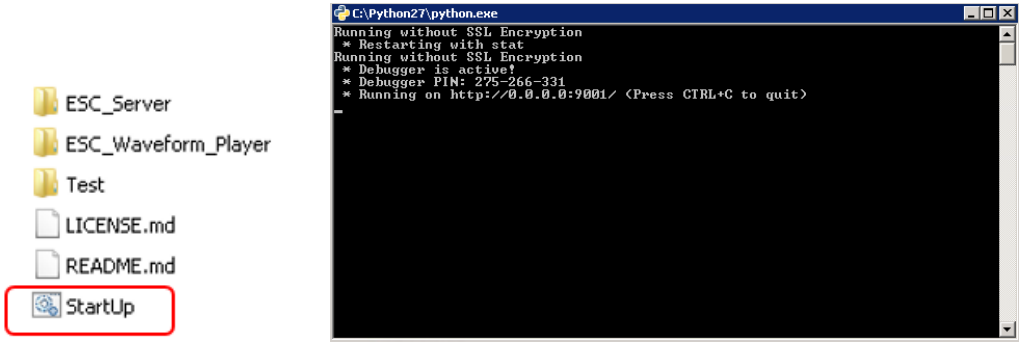

Fig.1

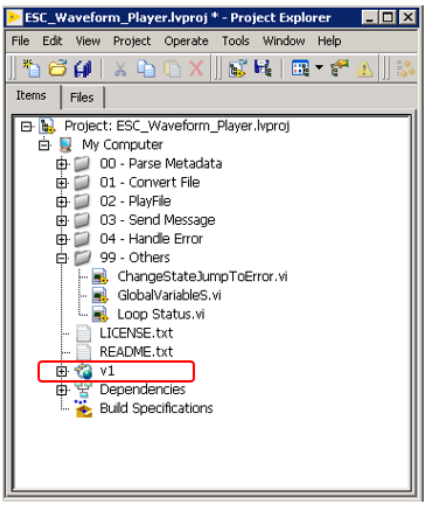

Fig. 2a

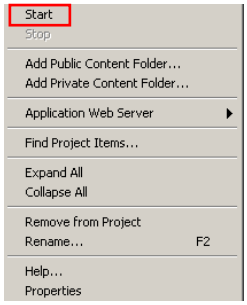

Fig. 2b

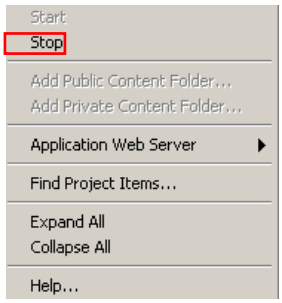

Fig. 2c

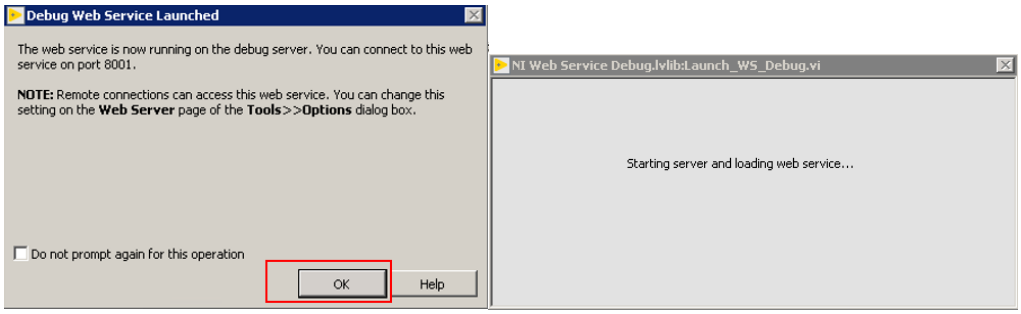

Fig.3

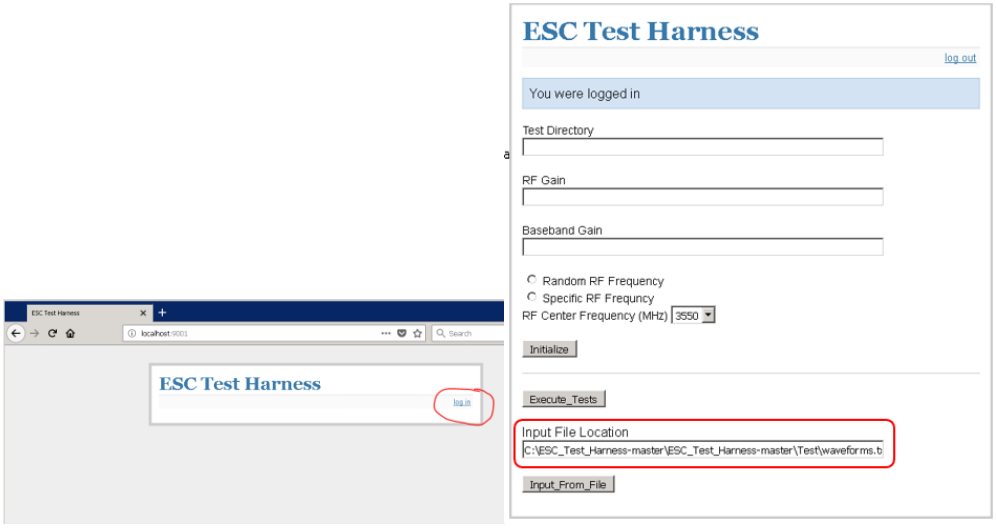

Fig.4

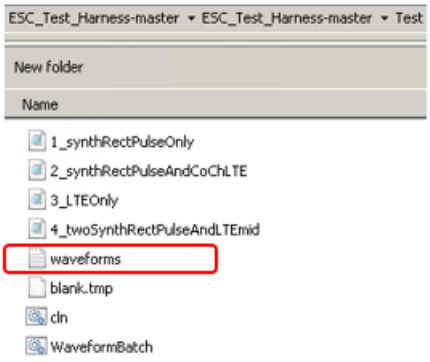

Fig. 5

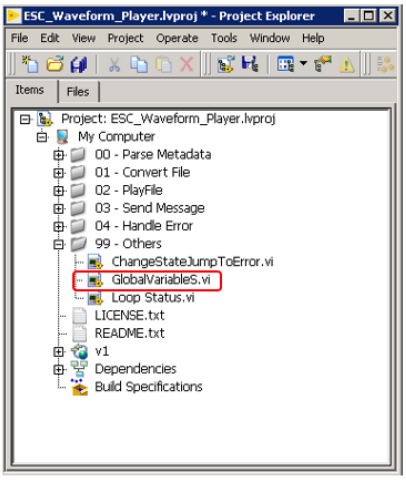

Fig.6

4) Locate the "waveforms.txt" file located in your "Test" folder. See figure 5. Enter the full path of the "waveform.txt" file into the "Input File Location" and press "Input_From_File" to play the waveforms as in figure 4.

The status of the waveform conversions and waveform playing can be monitored on the GlobalVriables.vi Front Panel.

4) Go to the LabVIEW project and expand the folder "99 – Others". Double click the "GlobalVariables.vi". The GlobalVariables.vi front panel will appear as in figure 7.

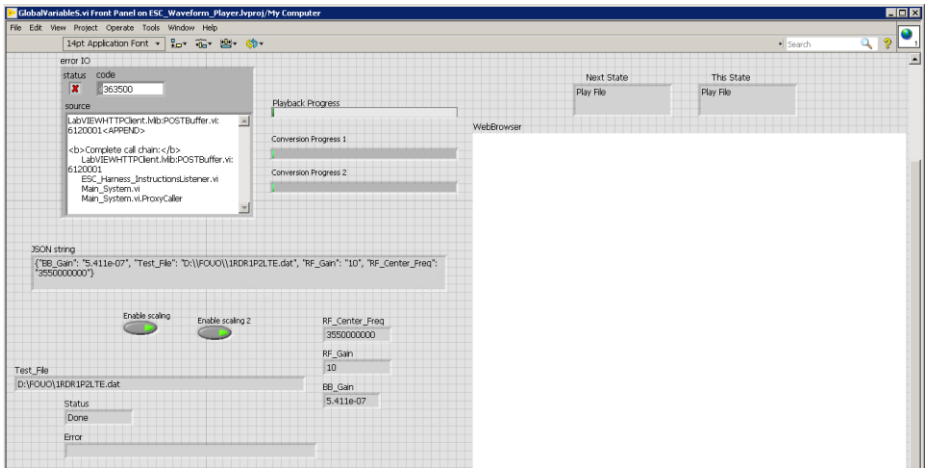

Fig. 7

Note: the waveforms can be viewed on your spectrum analyzer. See optional step 6 for configuring your spectrum analyzer.

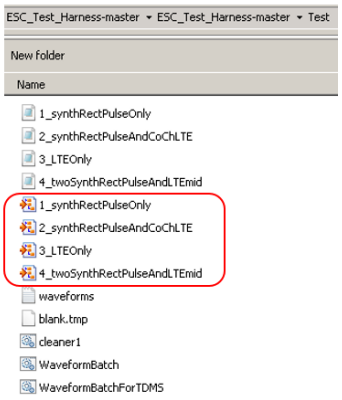

Fig. 8

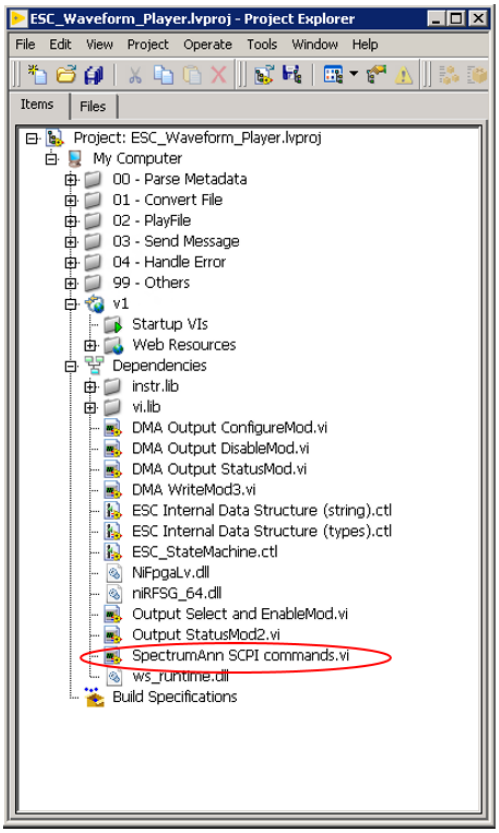

Fig. 9

This is an optional Step

5) **Configuring your spectrum analyzer**

The spectrum analyzer settings are controlled with Standard Commands for Programmable Instruments (SCPI) commands. The address for the VISA connection will need to be changed.

- To change the VISA address, go to the LabVIEW Project Explorer, expand the Dependencies tab.
- Locate and open the "SpectrumAnn SCPI commands.vi" as in figure 9.
- Enter the VISA address for your instrument. See figure 11.
- Expand the menu in the case structure to reveal the spectrum analyzer settings for the different waveforms as in figure 12.

If you prefer manual configurations, the "local" key on the spectrum analyzer will end the remote session.

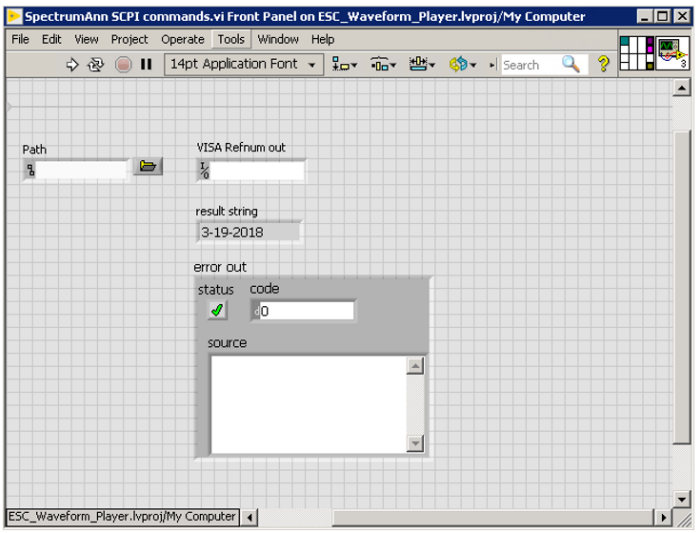

Fig. 10

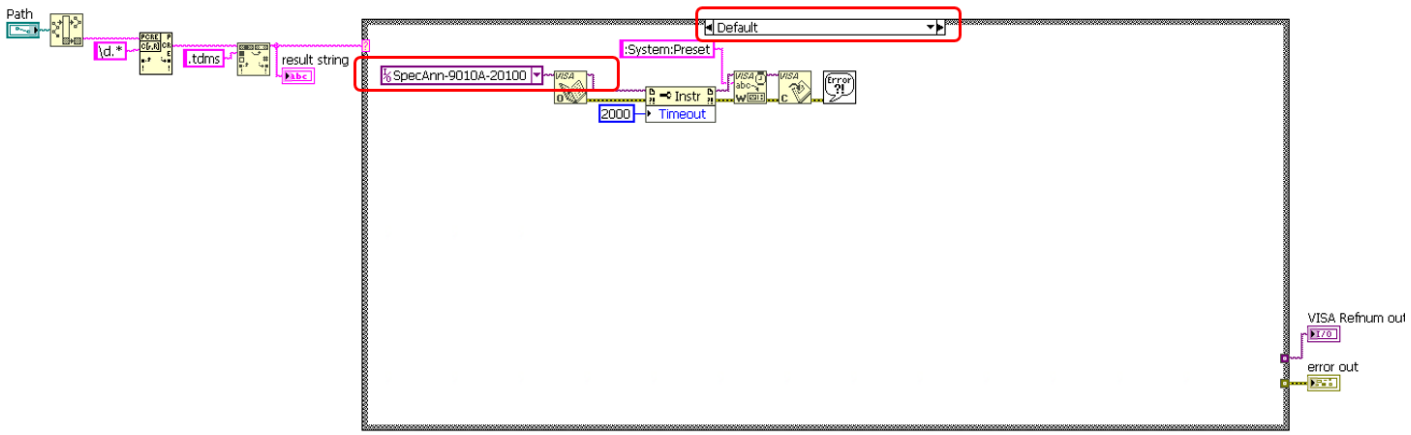
Path
\d.*
.tdms
result string
Default
:System:Preset
SpecAnn-9010A-20100
Instr
2000
Timeout
VISA Refnum out
error out

Fig. 11

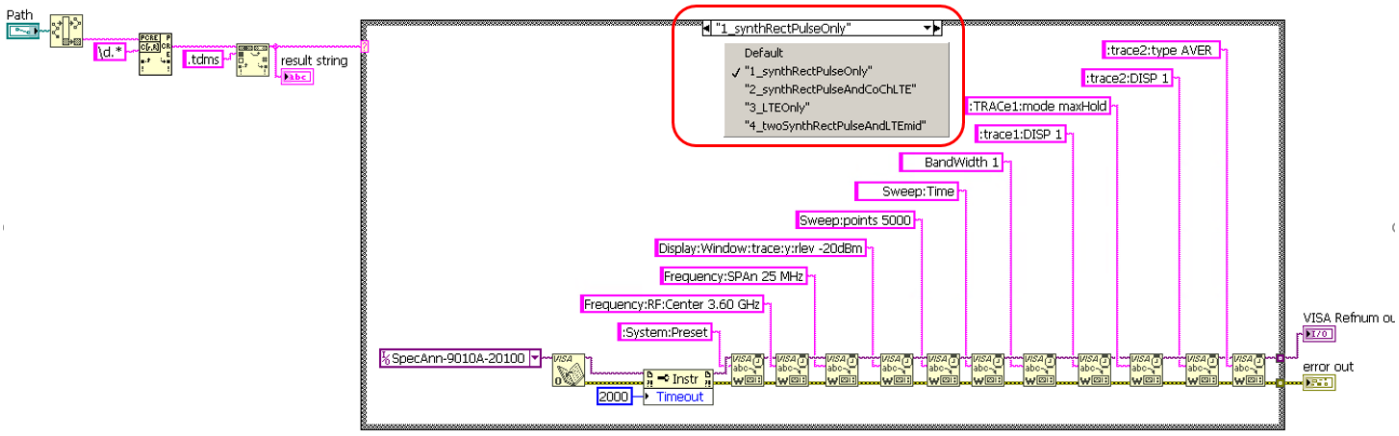
Path
\d.*
.tdms
result string
"1_synthRectPulseOnly"
Default
"1_synthRectPulseOnly"
"2_synthRectPulseAndCoChLTE"
"3_LTEOnly"
"4_twoSynthRectPulseAndLTEmid"
:trace2:type AVER
:trace2:DISP 1
:TRACe1:mode maxHold
:trace1:DISP 1
BandWidth 1
Sweep:Time
Sweep:points 5000
Display:Window:trace:y:rlev -20dBm
Frequency:SPAn 25 MHz
Frequency:RF:Center 3.60 GHz
:System:Preset
SpecAnn-9010A-20100
Instr
2000
Timeout
VISA Refnum ou
error out

Fig. 12