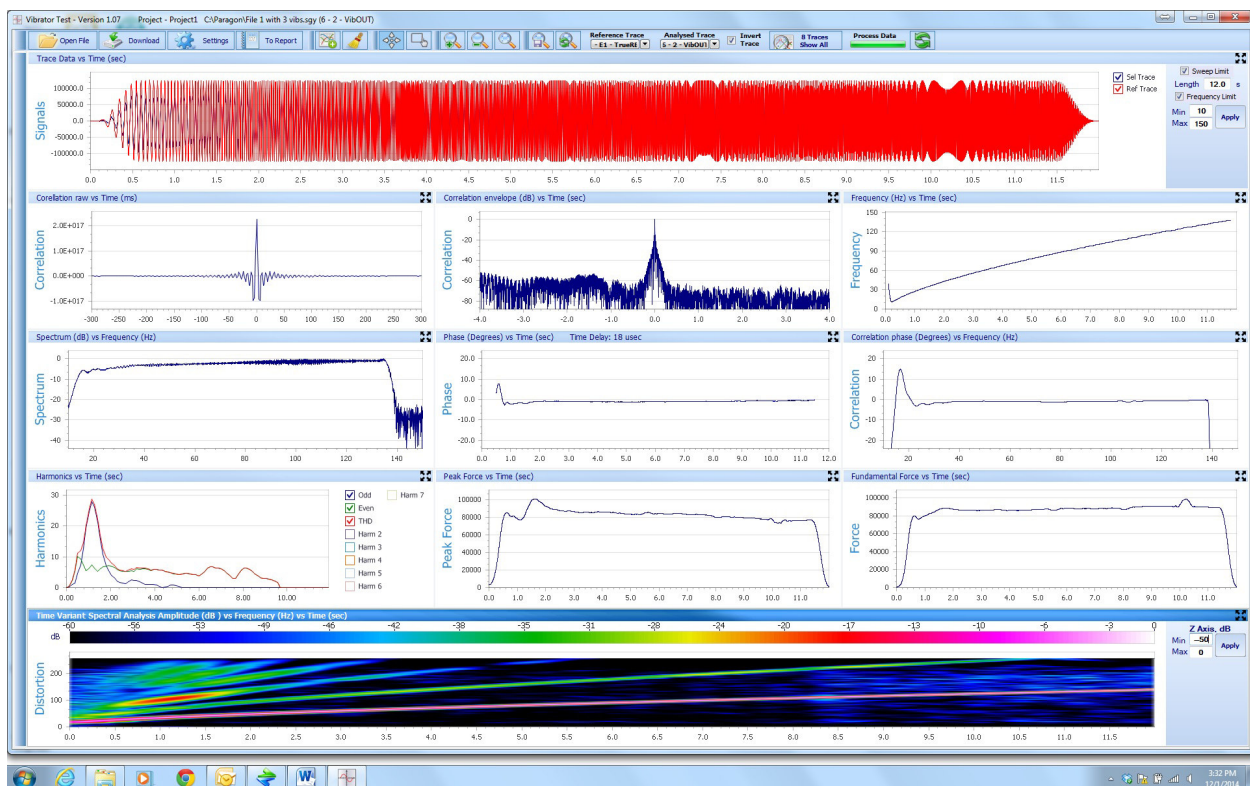




# VibTest Software

Vibrator Quality Control Analysis Software



User's Manual

## **VibTest Software User's Manual**

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# 1 Introduction

## 1.1 VibTest software

The Vibrator Test software, “VibTest”, can be used to analyze Servo Hydraulic Vibrator performance. Typically, SEG-Y or SEG-D files Wireline similarity files that have been recorded with the Bird Dog 3-11 Vibrator Quality control system or the Seismic Acquisition system are uploaded to the VibTest software. The VibTest software plots the performance of the vibrator using industry standard plots. These plots can be saved directly to a text editor program for a final report of the vibrator’s performance.

The VibTest software can also view data directly from the Force 3 vibrator electronics.

## 1.2 VibTest Software Installation and Setup

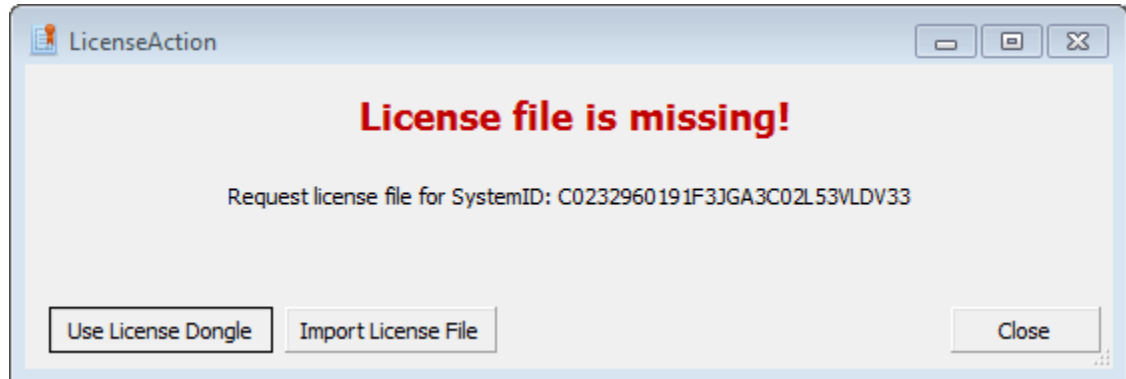
The VibTest software installs the VibTest application in the C:\SeismicSource\VibTest folder.

The program can be found under the Seismic Source- Vibrator Test applications.

### 1.3 License File

The VibTest software is controlled by a license file. The license file is unique to the computer for which it was generated and cannot be transferred. The system unique ID is obtained from the hardware. Operating system upgrades or reinstallation will not affect the license file. Please make sure that the license file is backed up and stored in a secure location. Location of the license file is *C:\Seismic Source\VibTest*

When VibTest is executed for the first time, the following dialog will appear:



**Figure 1**

The license file can be obtained the following ways:

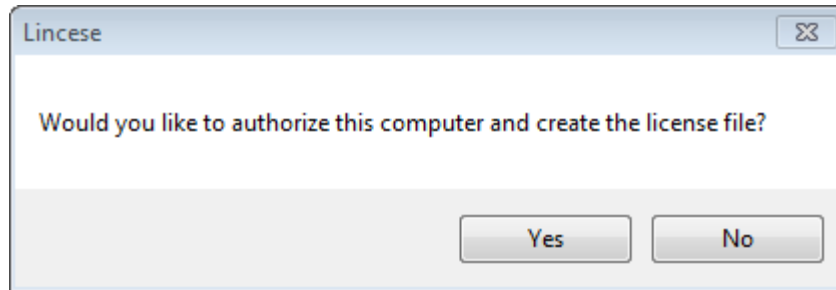
- Using a smart card based USB security device prepared by Seismic Source (**Use License Dongle** option)
- Sending the system unique identifier to Seismic Source, where the license file will be generated and emailed back (**Import License File** option)

(Please note that when this dialog shows up, the VibTest program copies the systemID to the clipboard)


#### Generating the license file using the USB security device

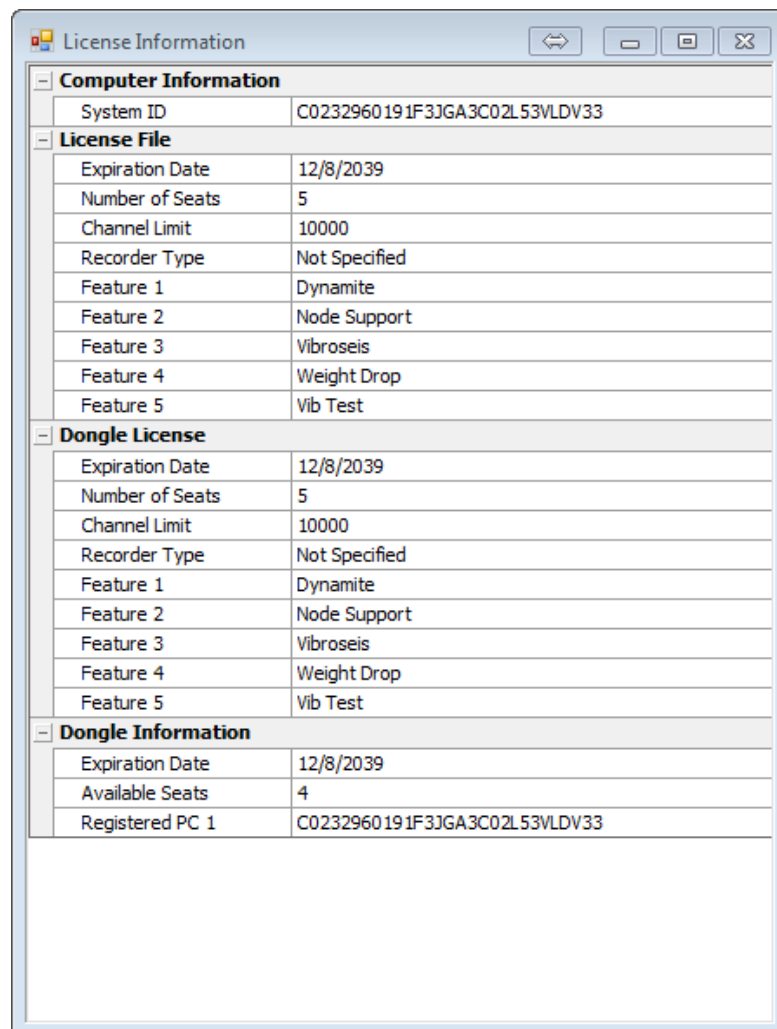


This device contains a secure smart card in which the license information is stored. It holds one or more license seats and all other licensing related information. Connect the USB dongle and wait until the operating system recognizes it. (This device is driverless so no additional installation is necessary in order to use it.) Click on the **Use License Dongle** option (Figure 1). If there are available seats on the device, it will ask permission before the license is generated.



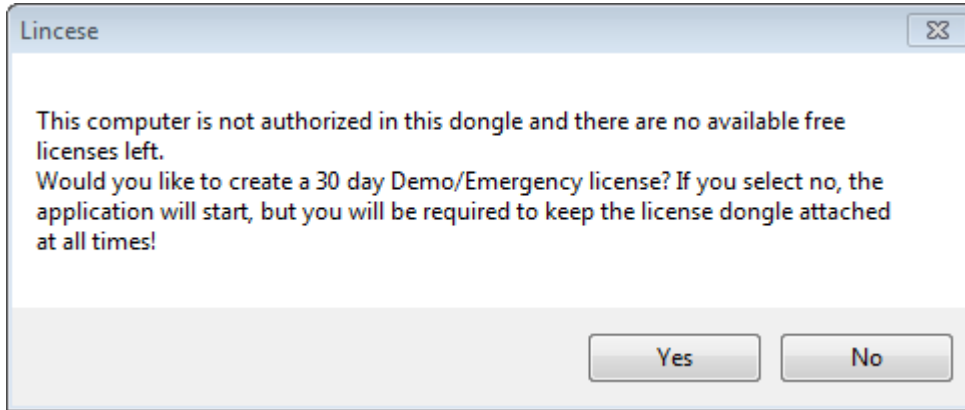
After clicking **Yes**, the license will be automatically generated and the VibTest program will launch.

The license can be checked any time by clicking the  icon on the toolbar. The license information contains the details of the license file on the local computer and the dongle information (if it is plugged into the system).

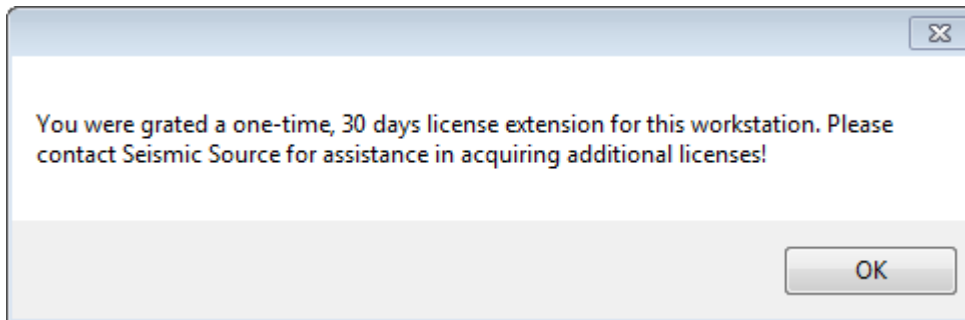


If the license file is deleted, the dongle can be used to regenerate it. When a license is issued for a computer, the systemID is stored in the dongle. The license file will be generated without using up an additional seat.

In case the dongle has no more available seats or it has expired, the user has the option to create a 30 day temporary license. During this 30 days a permanent license needs to be obtained.



If the user chooses to create the temporary license, the system will display the following confirmation:



#### **Obtaining the license file directly from Seismic Source**

Email the systemID to [mail@seismicsource.com](mailto:mail@seismicsource.com) with your contact information. A Seismic Source representative will contact you and send you the license file. Click on the **Import License File** option (Figure 1) and navigate to the license file. The system will copy the license file to its permanent location and VibTest will start automatically.

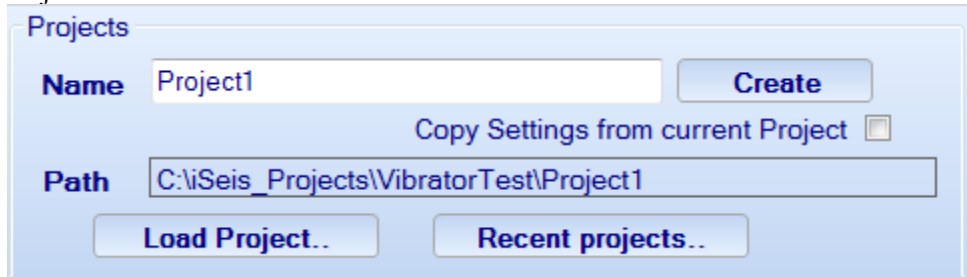


## 2 Configuring The Program

### 2.1 Project

Go to the Settings menu and Enter a Project Name.

Press Create to Create the project. The project will store all of the settings. Previously stored project settings can be loaded into the new project by selecting the “Copy Settings from current Project” selection.



The screenshot shows a dialog box titled "Projects". It has a "Name" label followed by a text input field containing "Project1" and a "Create" button. Below this is a checkbox labeled "Copy Settings from current Project". Underneath is a "Path" label followed by a text input field containing "C:\iSeis\_Projects\VibratorTest\Project1". At the bottom are two buttons: "Load Project.." and "Recent projects..".

Then select the SEG-Y or SEG-D file containing the vibrator data

### 2.2 Loading File

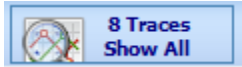
Press the Open File Button



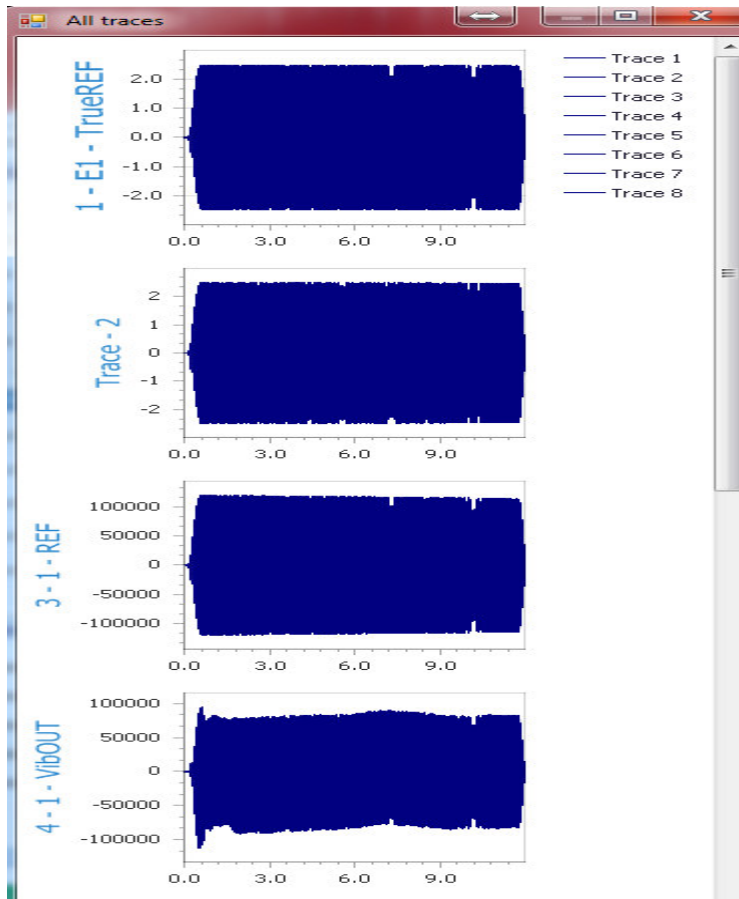
Then select the SEG-Y or SEG-D file containing the vibrator data.

## 2.3 Show All Traces

Press the Show All Traces Icon



All of the traces in the file will then be displayed



Document the trace numbers to be used for analysis. Typical wireline files have the first few traces from the central recorder (Encoder Reference), and then two Traces from each vibrator unit, Vibrator Reference and Vibrator Output (Weighted Sum).

## 2.4 Edit Trace Definitions

Press the Settings Icon



and then Select “Edit Trace Definitions”



The screenshot shows two windows. The 'Settings Dialog' on the left has sections for Projects, Project Settings, Processing Window, Report Settings, Group Report, and License. The 'Trace Definitions' window on the right contains a table with 12 rows of trace data.

Trace Num	Vibrator ID	Trace Name	Scale	Trace Type
1			1.0	None
2			400.0	Enc Ref
3	1		400.0	Vib Ref
4	1		400.0	Vib Out
5	2		400.0	Vib Ref
6	2		400.0	Vib Out
7	3		400.0	Vib Ref
8	3		400.0	Vib Out
9	4		400.0	Vib Ref
10	4		400.0	Vib Out
11	5		400.0	Vib Ref
12	5		400.0	Vib Out

Enter the details for each trace number

The Scale factor can be changed to match the gain of each trace. Normally all the vibrator signals will have the same scale setting. The data from the Encoder may need a different scale setting.

To convert Scaled Similarity Data from the Force 3 or Sercel VE464 from millivolts to pounds use the scale factor of **400 for F3** and **71.56 for Sercel VE464**. ( Use this scaling for Standard SEG2 or SEG2 recordings)

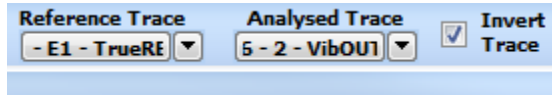
To convert Scaled Similarity Data from the Force 3 or Sercel VE464 from volts to pounds use the scale factor of 400,000 for F3 and 71,564 for Sercel VE464. (Use this scaling for Seismic Source Sigma or DAQlink recorders SEG2)

Select Report Type for Overlay or Individual or Both.

## 2.5 Select Traces to Analyze

The VibTest software uses two traces for the analysis. The First Trace is the Reference Trace it is used as the master Reference Trace sweep, the second trace is the Analyzed Trace it is compared to the Master Reference Trace.

The Invert Trace button allows the Analyzed Trace to be inverted. This selection inverts the trace to be analyzed. This will change the phase response by 180 degrees



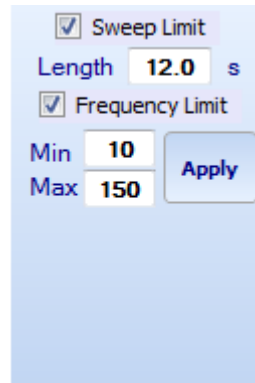
## 2.6 Process Data

After selecting the traces to be used for the analysis, The plots can be updated. Press the Process Data Icon to update the graphs



## 2.7 Global X axis setting on all Plots

The top plot shows the Signal Traces in the time domain. At the right of the plot there are some Global settings that can be used to set the X-axis for each of the graphs



The Sweep length can be used to set the X-axis on all of the plots that use time as the x-axis.

The Frequency Limit can be used to set the X-axis on all of the plots that use Frequency as the x-axis.

## 2.8 Setting X and Y axis on individual Plots

First you must select the plot individually to set the X and Y axis.  
Press the



This will cause the individual plot to be selected and will be displayed as a single plot on the VibTest Screen.

On the Top Right side of the plot the Zoom Setting Dialog will be shown

On the X-axis, if the Fixed and Whole Range check boxes are not checked, then the X-axis will use the Global X-axis setting that are shown in section 2.6 of this manual.

Selecting Whole Range will set the minimum and maximum of the signal level to the min and maximum x or Y axis. This allows the whole signal to be displayed on the graph. The Whole range selection overrides the Global Settings.

Selecting Fixed Range will set the minimum and maximum values of the X or Y axis to what is shown in the entries below the selection. Min sets the minimum value while Max sets the maximum value.

Press Apply to update the graph

Press the



To return to the standard VibTest display.

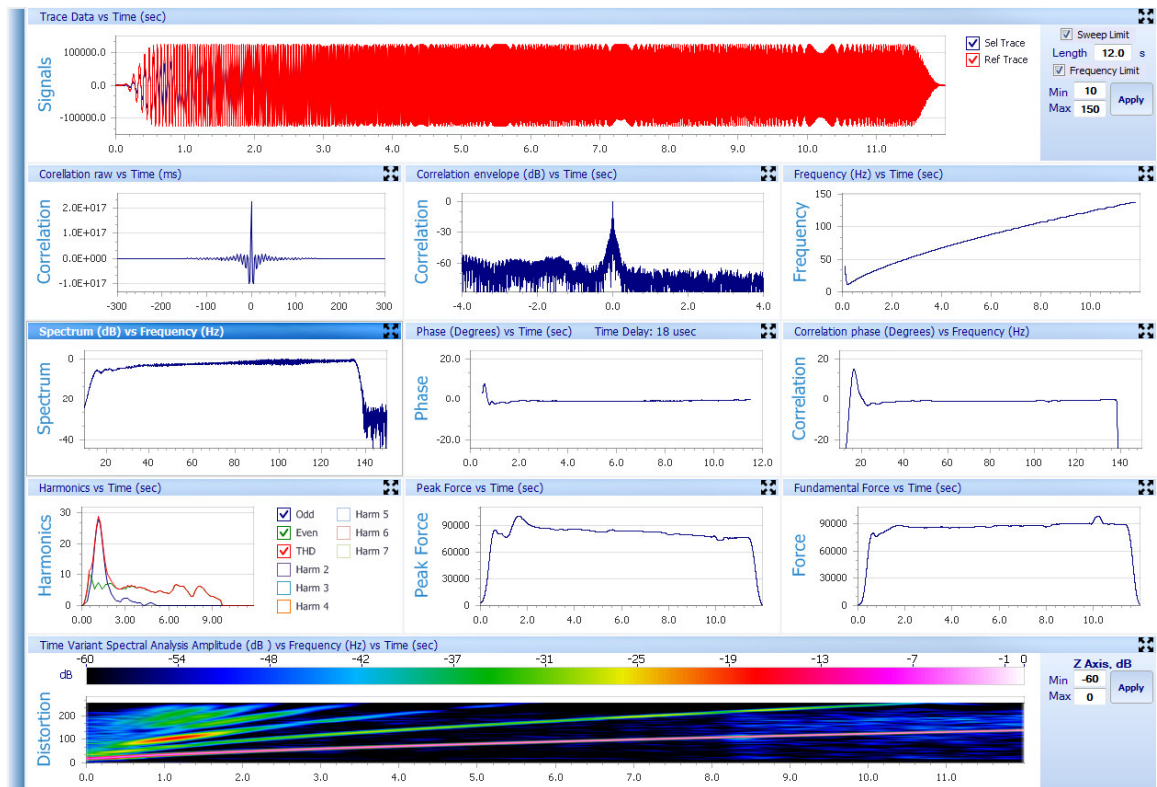
Repeat this process for each graph to setup the X and Y scale.

The Time Variant Spectral Amplitude plot has an additional Z-Axis that can be set from the main menu. Change the min and max entries and press Apply to change the Z-Axis.

Z Axis, dB	
Min	-60
Max	0
<input type="button" value="Apply"/>	

## 2.9 Standard VibTest Display

The Standard VibTest plots shows the results of 11 different analysis.



Top plot shows the Reference Trace and Analyzed Trace in the time domain.

Top Left is cross correlation plot - This plot shows the general phase relationship and any time offset between the two traces.

Top Middle is cross correlation plot with Y-axis in dB scale. This plot is very useful in showing the effect of the vibrator distortion on the seismic data. Normally the x-axis is set to the listen time of the seismic record. For normal operation, the correlation noise should be less than -60 dB in the positive x direction and less than -40 dB in the negative x direction. Large cross-correlation noise will cause ghosting on the seismic record.

Top Right is Frequency vs. time plot. This plot shows the sweep rate of the selected Reference sweep.

Middle left plot shows amplitude spectrum of the “Analyzed Trace”. This plot shows the energy of the vibrator signal with frequency as the x-axis.

Middle Middle plot shows the phase error of the analyzed trace when compared to the Reference trace. Time is on the x-axis and phase in degrees is the Y-axis. The plot also shows the time error between the Reference and Analyzed Trace. This time error is the average of all of the time errors computed for the plot. Poor phase control can show large time error. The time error is most useful when comparing the Reference Trace from one unit to the Reference Trace to another unit.

Middle Right plot shows phase error of the analyzed trace when compared to the Reference Trace with Frequency as the x-axis.

Bottom left plot shows the Harmonic distortion plot. This is the computed distortion plot of the analyzed trace when compared to the Reference Trace. The y-axis is in percent and the x-axis is in time. The THD – Total harmonic distortion, Odd – Odd Harmonics Only (3,5,7 etc.), or Even – Even Harmonics only (2,4,6, etc) can be shown. There is also a selection to show just the 2<sup>nd</sup>, 3<sup>rd</sup> or 4<sup>th</sup> harmonic.

Bottom Middle Plot shows the Peak Force versus Time. This is the computed Peak Force of the analyzed trace with time as the x-axis. When connected to a Force 3 vibrator electronics the Y-axis will normally be in pounds of Force. When analyzing Wirelines sims from different recording systems, the scaling of the Y-axis is not usually known.

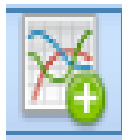
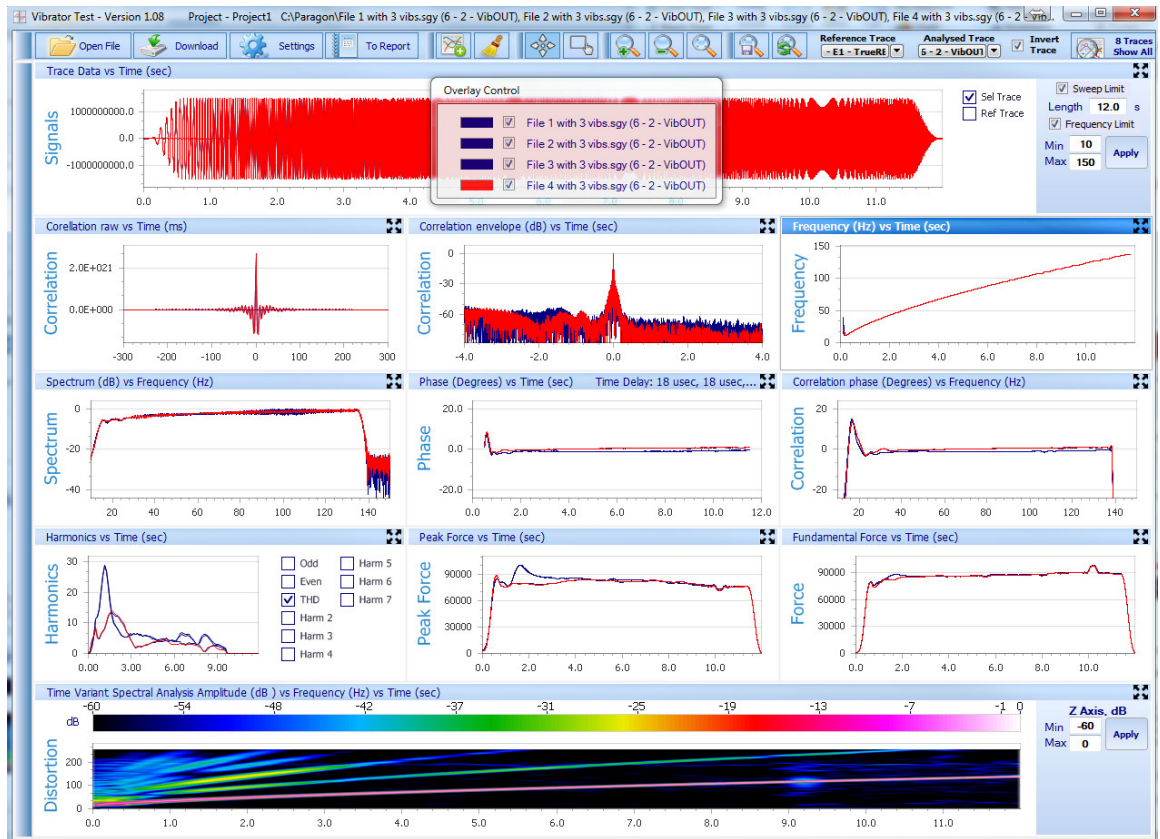
Bottom Right Plot shows the Fundamental Force versus Time. This is the computed Fundamental Force of the analyzed trace when compared with the Reference Trace with time as the x-axis. When connected to a Force 3 vibrator electronics the Y-axis will normally be in pounds of Force. When analyzing Wirelines sims from different recording systems, the scaling of the Y-axis is not usually known.

Bottom Plot shows the harmonic distortion of the analyzed trace using a time variant spectral analysis. The amplitude spectrum of the analyzed trace is performed on time windows. Starting at the first of the sweep and moving through the sweep with small incremental steps. The plot shows the fundamental frequency and the harmonics and what time the harmonics are largest amplitude.

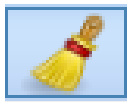


## 2.10 Overlay

The plots from multiple analyses can be overlaid to compare the response from the multiple vibrator units.

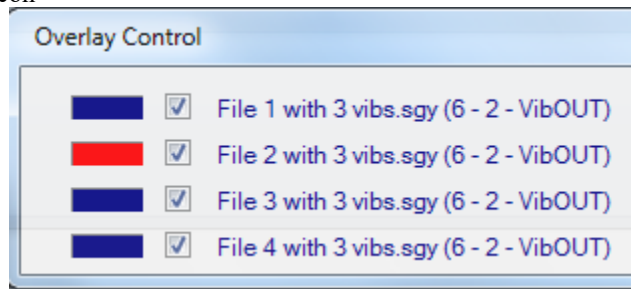


Press the button to add the plots to the overlay



Press the button to erase the overlays.

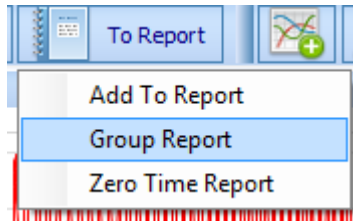
Use the Overlay control dialog to enable different plots by checking or unchecking the overlay enable icon



Also by clicking on the color the different stored traces can be selected for the highlighted RED color.

## 2.11 Report

The selected plots can be added to a report at any time. Press the To Report Icon to add to the report.



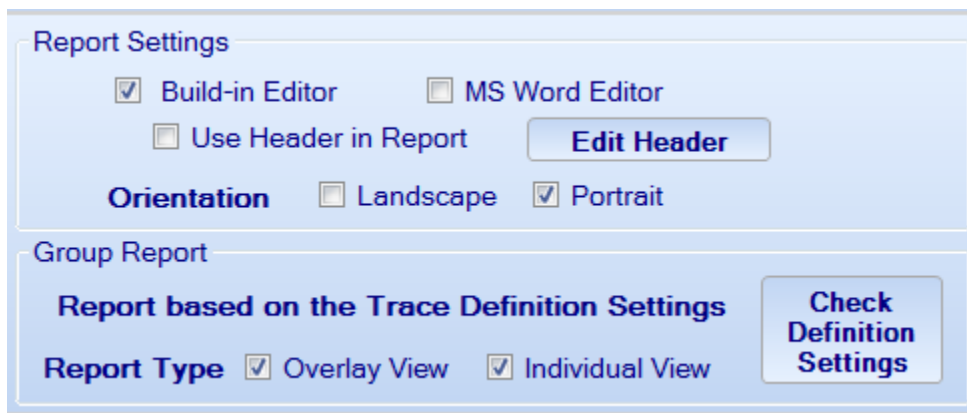
### 2.11.1 Group Report

Group Report will generate a full report on multiple vibrators with just one click.

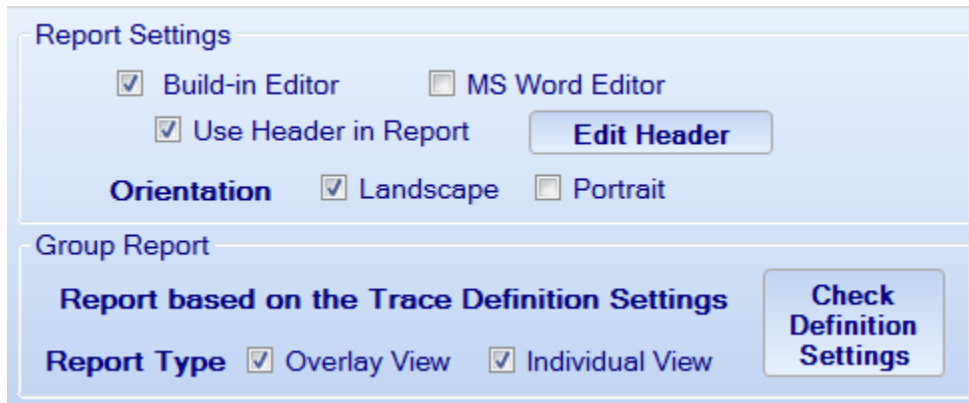
First Setup the Different Vibrators Reference and Vibrator output in the Trace Definitions.

Then Run the Group Report

The plots will automatically be sent to the editor that has been selected in the Settings – Report Settings Menu.

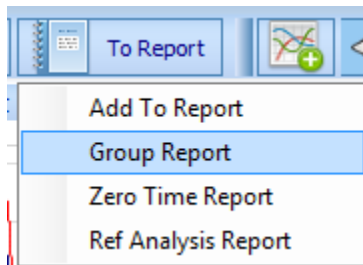


First Setup the Reports in the Settings- General Settings menu



The screenshot shows the 'Report Settings' dialog box. It has two main sections. The top section, titled 'Report Settings', contains checkboxes for 'Build-in Editor' (checked) and 'MS Word Editor' (unchecked), a checkbox for 'Use Header in Report' (checked) with an 'Edit Header' button next to it, and an 'Orientation' section with 'Landscape' (checked) and 'Portrait' (unchecked) options. The bottom section, titled 'Group Report', contains the text 'Report based on the Trace Definition Settings' and a 'Check Definition Settings' button. Below this, the 'Report Type' section has checkboxes for 'Overlay View' (checked) and 'Individual View' (checked).

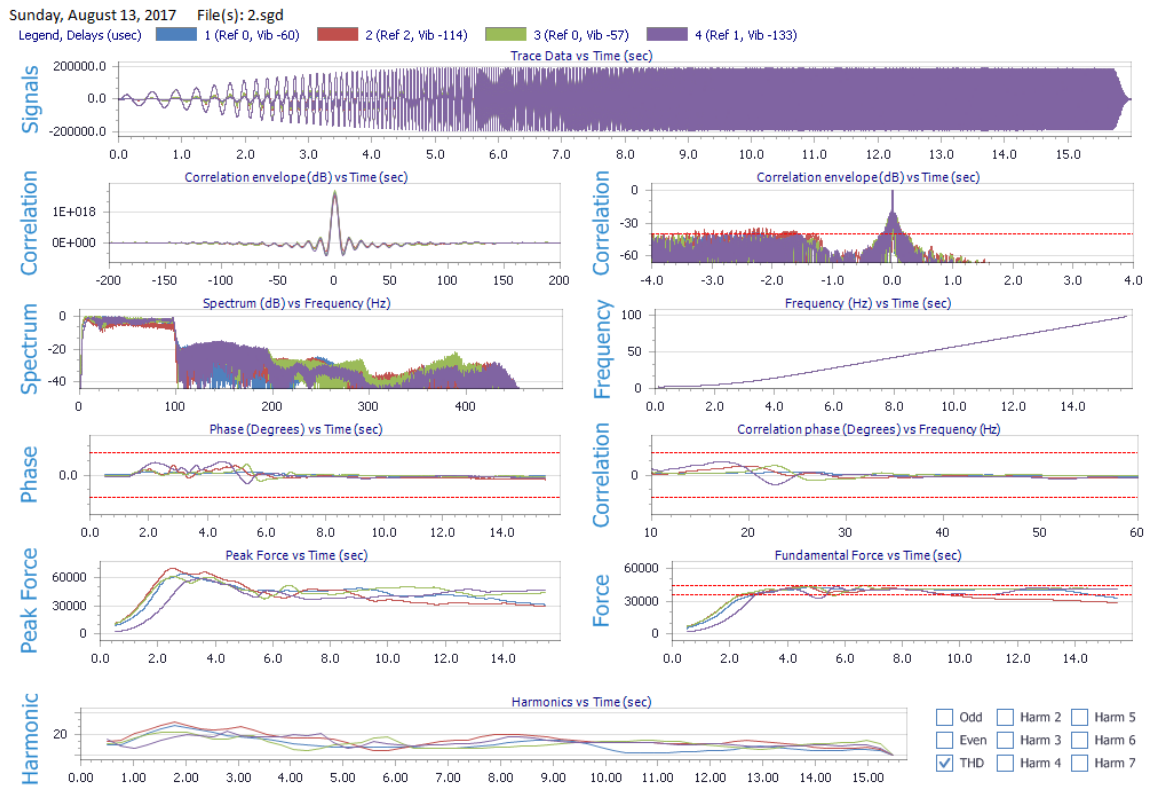
Go to the Report Tab and select “Group Report”



All the vibrators will automatically be analyzed and a Report will be generated.

Also additional analysis can be added to the report by pressing the “Add to Report” button. This will add the current analysis to the report.

## MultiPlot Report with all of the Vibrators can be generated



The Time Errors shown are calculated from the Encoder Reference versus the Vibrator Output signal.

The time Error is the average time error for the sweep. Large phase Error at low frequencies can cause the time error to show a large value.

### 2.11.2 VSS Summary Report

The VSS summary report can be used to analyze all the saved VSS data from the multiple Force 3 vibrator controllers. The comprehensive report includes detailed graphs for Phase, Force and Distortion, plus additional “scatter plots” showing all the critical values with Time as the x-axis.

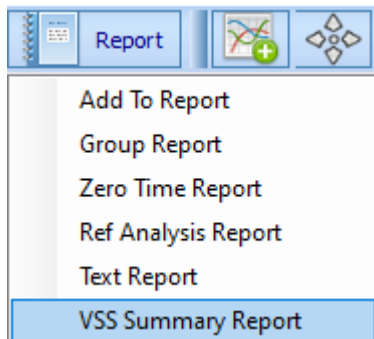
The Raw DAT files from the Force 3 USB sticks can be analyzed or the SEG-Y files from the Data Collector Software can be analyzed. The ASI and SIF files can be used with the Data Collector software to download only the sweeps that were used for production. This will eliminate any of the “test” sweeps or “Void” Sweeps from the analysis.

First Open one of the VSS files and set up all the graphs. The VSS data can be either the raw “DAT” files or the “SEG-Y” format.

Once the graphs are setup, then analysis of all the DAT files in a subdirectory can be analyzed.

The subdirectory can have data from multiple vibrator numbers and cover multiple days of recording

Select the VSS Summary Report from the Report menu

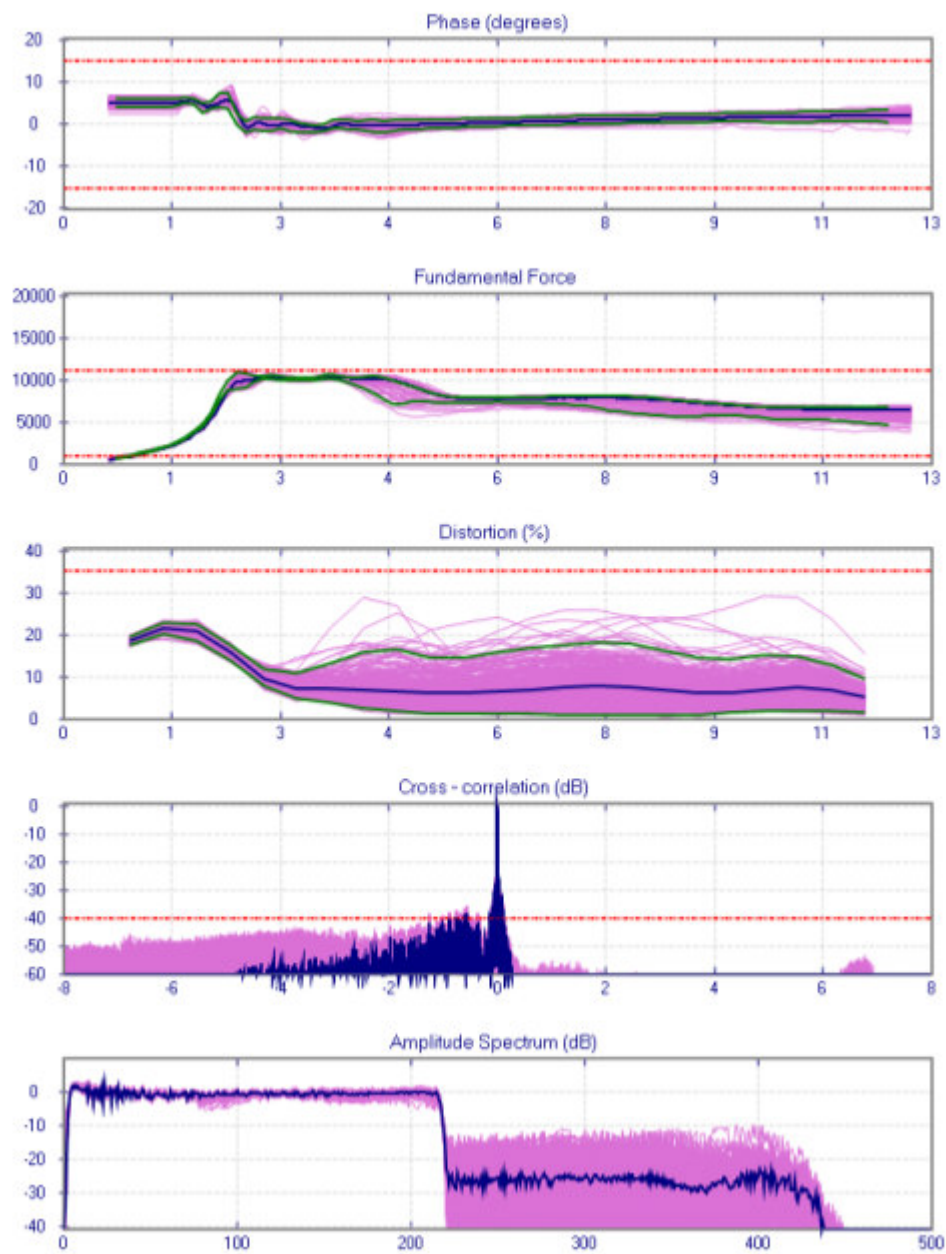


Select the subdirectory that includes the DAT/SEG-Y files

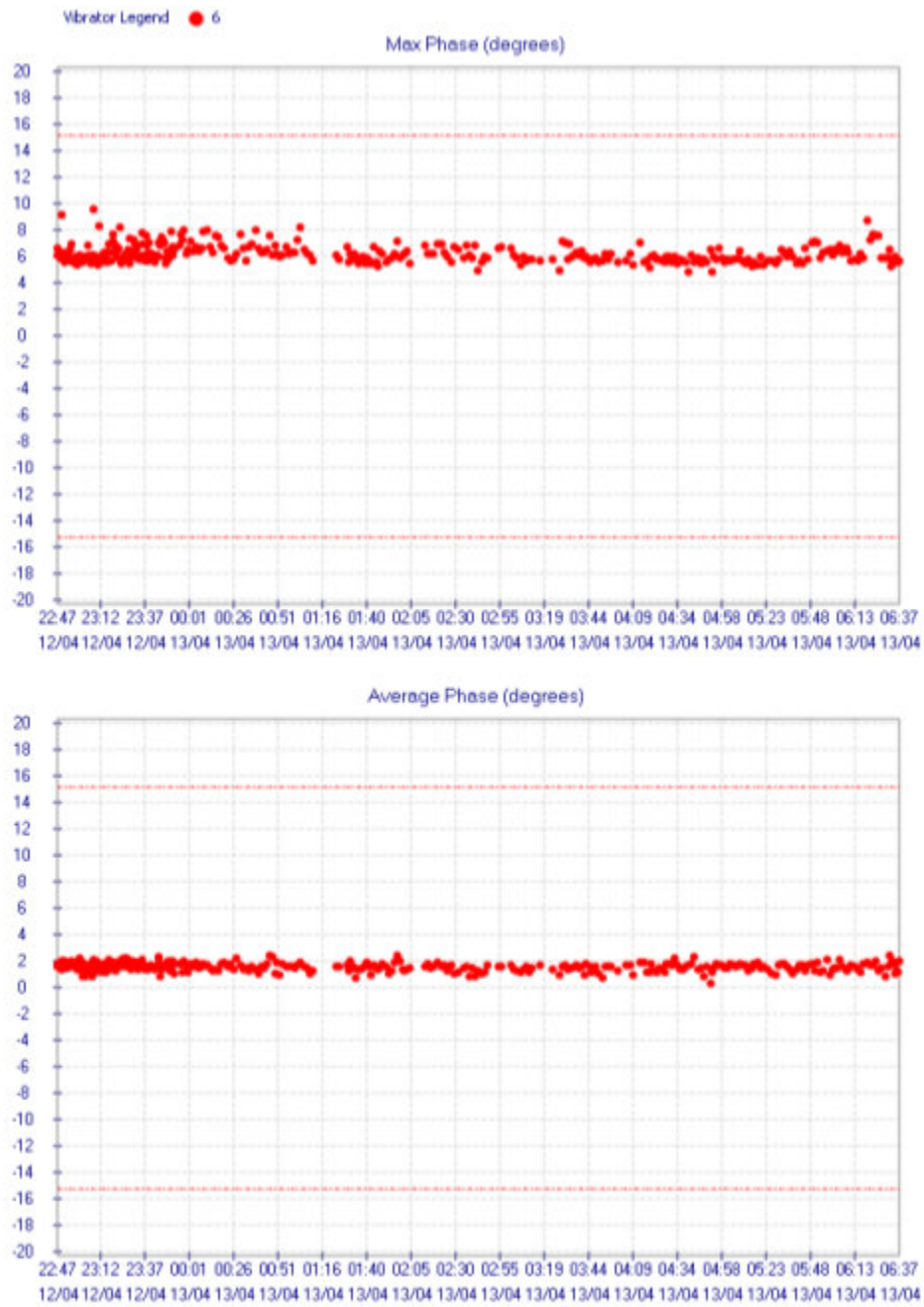
The process bar will be displayed, and the Report will be Generated.

## First page of report

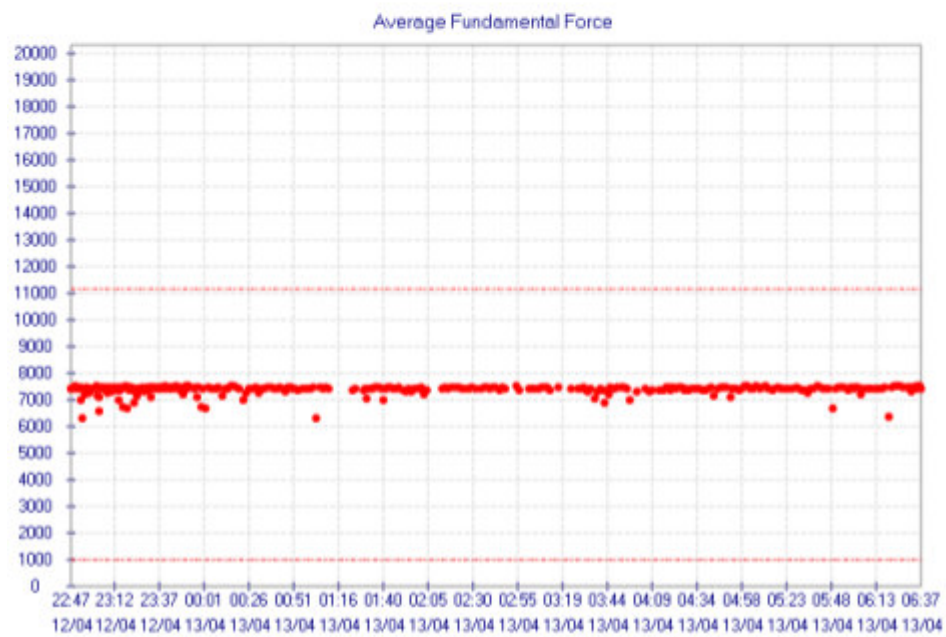
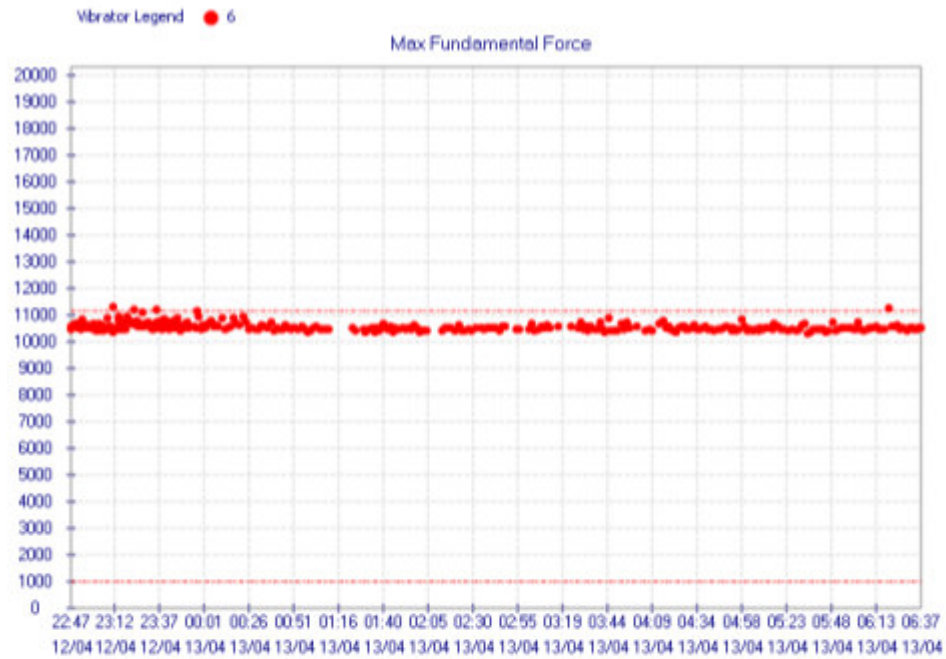
Force QC for vibrator 6    Number of Vib files analyzed - 343    Total - 343    created on 05 May 2020 12:15  
Vib 6 - 5053 (Trace 4 - VibOut vs Trace 1 - VibRef)

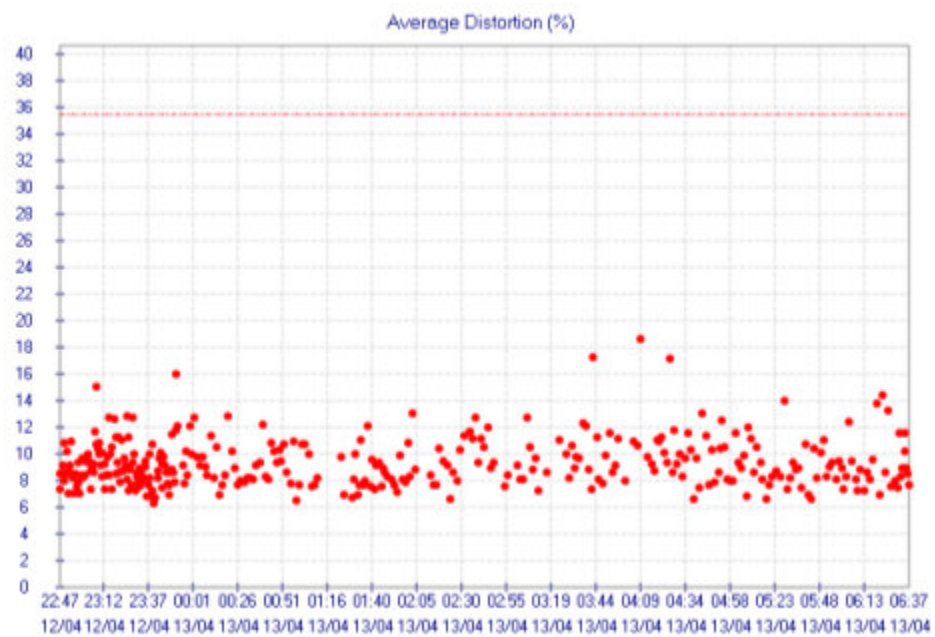
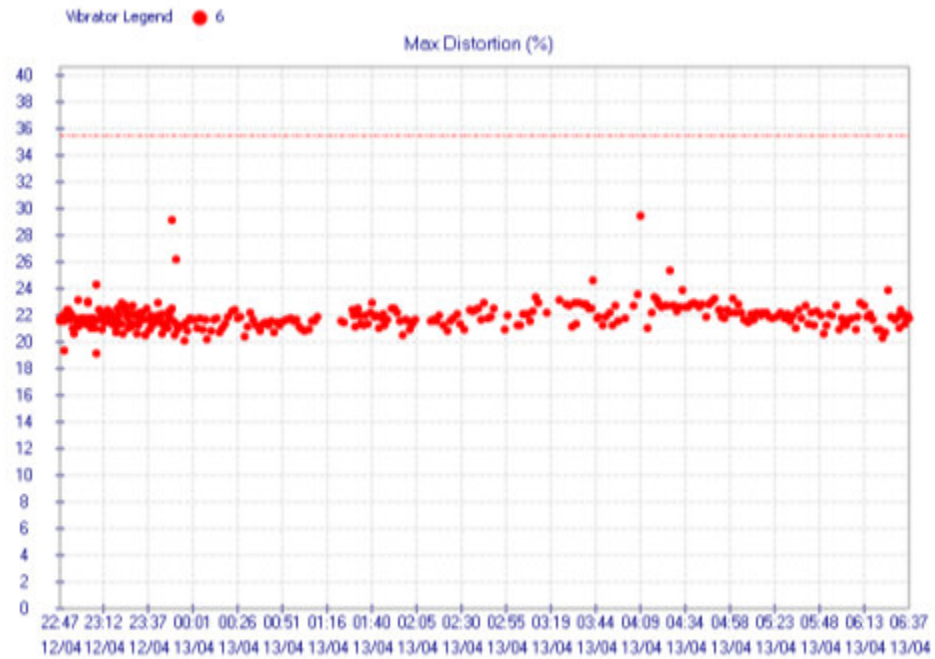


Second page of Report





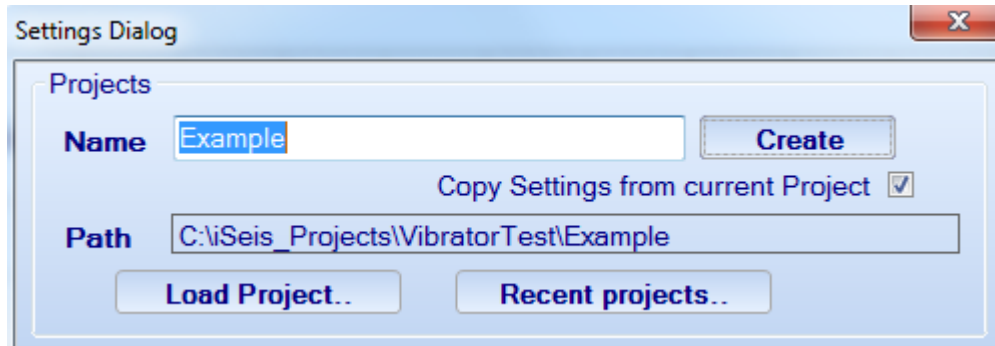




## 2.12 SEG-D Data example

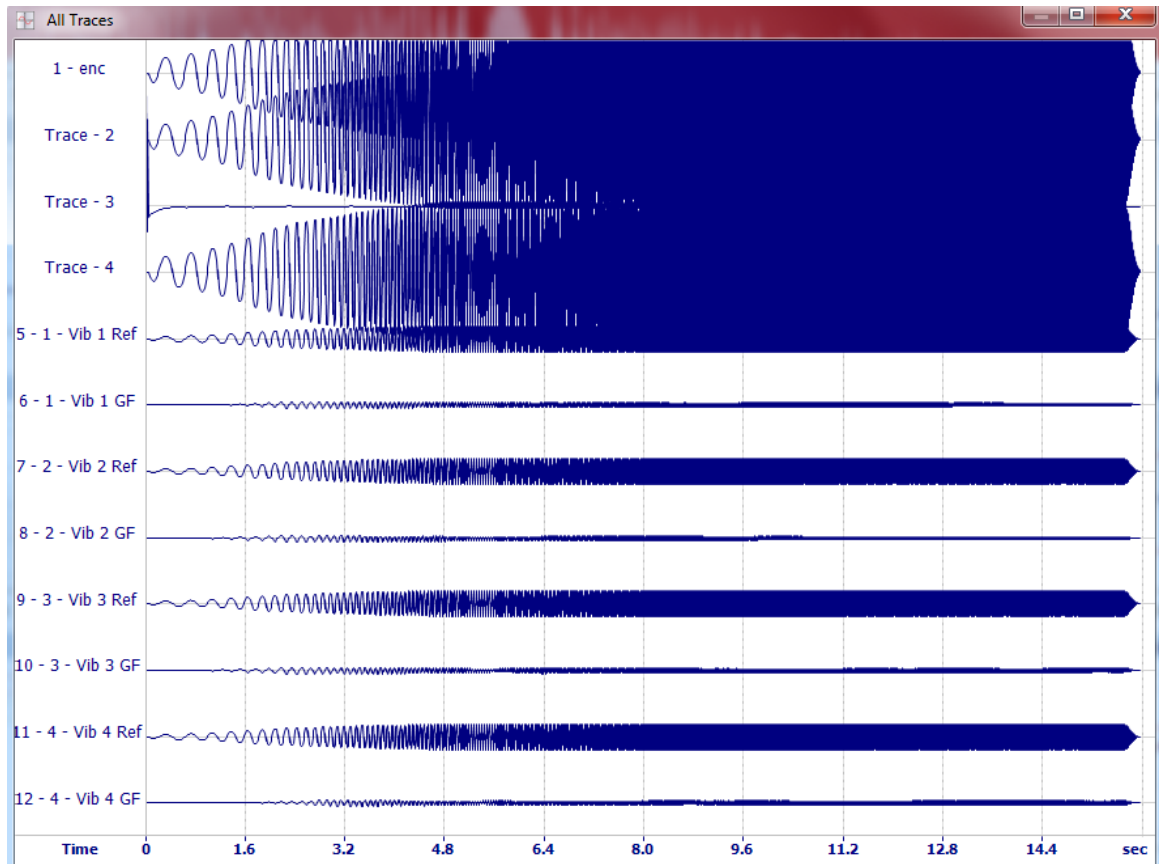
The following record was recorded in SEG-D format. This recording system was connected to the Encoder and to 4 Vibrators.

First Load a New Project or load a similar project. Go to Settings- General Settings and either load a similar project or Create and new project. When creating a new project there is an option to Copy all of the current setting.



Go to the File menu and open the file to be analyzed.

View the Data using the Show all traces option.



In the General Settings- Project Settings menu, set the traces to be analyzed.

Enc Ref Trace – This should be set to the Master Reference Sweep from the Encoder.

**Note: The trace set in this dialog will be used for all the ‘time error’ calculations shown on each Graph**

The Vib Ref Trace and Vib out Trace can be selected here or on the Main Screen.

Select “Use Trace Definitions” to set the scaling of each Trace

## 2.13 Edit Trace Definitions

The Trace definitions are automatically detected when using the VSS data from the Force 3 system. For data generated from 3<sup>rd</sup> party recorders (Bird Dog files) will need the traces defined.

Go to the Edit Trace Definition

The data entered in this menu will be used for the automatic Report feature.

Trace Type – Must be enter correctly for each vibrator. Only 1 Reference Trace and 1 Vibrator Output Trace should be selected for each unique Vibrator ID.

Trace Name – Is user entered name that will show on the plots

### 2.13.1 Scale

Scale – is used to scale the plots from Voltage to Pounds of Force

- Force 3 Scaled Similarity system scales the Force to 2.5 micro-volts for each 1 pound of Force. Or 400,000 lbs of Force = 1 volts, or 400 lbs of Force = 1 millivolt
- Most Seismic Recorders record data in Milli volts, so a Scale of 400 is entered.
- The SSC recorders and the Force 3 system record the data in volts, so a scale of 400,000 should be entered wne using the Force 3 system, SSC BD3-11 or similar SSC recorder.
- Sercel Vibrator Electronics scale the analog output signals to 71,564 lbs of Force = 1 volt. So, enter Scale value of 71.564 for most Seismic systems and enter 71,564 for SSC recorders. (note: internal Sercel files require x833.6 to scale to pounds of force)
- The older Pelton and SSC vibrator wirelines used external resistors to scale the signals. The Vibrator Output Signals were also scaled to the “Hold down Weight” of the system. The scaling for these systems is more difficult to calculate. Easiest way is the enter a value that gives “reasonable” results.

Trace Definitions

Trace Count

Trace Num	Vibrator ID	Trace Name	Scale	Trace Type
<input type="checkbox"/> 1	<input type="text"/>	enc	30.0	Enc Ref ▾
<input type="checkbox"/> 2	<input type="text"/>		1.0	None ▾
<input type="checkbox"/> 3	<input type="text"/>		1.0	None ▾
<input type="checkbox"/> 4	<input type="text"/>		1.0	None ▾
<input type="checkbox"/> 5	1	Vib 1 Ref	400.0	Vib Ref ▾
<input type="checkbox"/> 6	1	Vib 1 GF	400.0	Vib Out ▾
<input type="checkbox"/> 7	2	Vib 2 Ref	400.0	Vib Ref ▾
<input type="checkbox"/> 8	2	Vib 2 GF	400.0	Vib Out ▾
<input type="checkbox"/> 9	3	Vib 3 Ref	400.0	Vib Ref ▾
<input type="checkbox"/> 10	3	Vib 3 GF	400.0	Vib Out ▾
<input type="checkbox"/> 11	4	Vib 4 Ref	400.0	Vib Ref ▾
<input type="checkbox"/> 12	4	Vib 4 GF	400.0	Vib Out ▾

Traces Num

## Check Definition Settings

After Setting all of the Definitions Press the “Check Definition Settings” to verify that the Settings are correct.

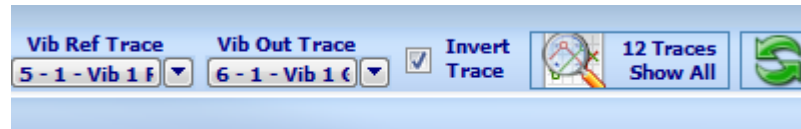



## 2.14 Plot Data

Once the Scales have been setup correctly


Return to the main screen and plot the data

Use the Vib Ref and Vib Out selections to plot the two traces

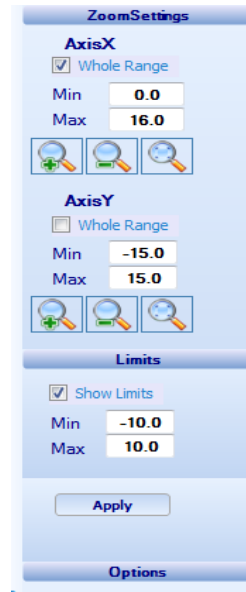


The  Button is used to reprocess the data. Press this button after changing the signals to be processed.

To Change the Scale of any of the individual plots, the plot first must be selected.

Press the  button to make the plot Full Scale


When the plot is full scale the axis menu appears



The image shows a 'ZoomSettings' dialog box with three sections: 'AxisX', 'AxisY', and 'Limits'. Each section has a 'Whole Range' checkbox, 'Min' and 'Max' value fields, and three zoom icons (a magnifying glass with a green plus, a magnifying glass with a green minus, and a magnifying glass with a green arrow). The 'AxisX' section has 'Whole Range' checked, 'Min' at 0.0, and 'Max' at 16.0. The 'AxisY' section has 'Whole Range' unchecked, 'Min' at -15.0, and 'Max' at 15.0. The 'Limits' section has 'Show Limits' checked, 'Min' at -10.0, and 'Max' at 10.0. An 'Apply' button is at the bottom, and an 'Options' button is at the very bottom.

ZoomSettings	
<b>AxisX</b>	
<input checked="" type="checkbox"/> Whole Range	
Min	0.0
Max	16.0
<b>AxisY</b>	
<input type="checkbox"/> Whole Range	
Min	-15.0
Max	15.0
<b>Limits</b>	
<input checked="" type="checkbox"/> Show Limits	
Min	-10.0
Max	10.0
Apply	
Options	

Limits Option- There is also an option to add Limits to Each Graph.

Once the axis and limits have been set, the  button must be pressed again to go back to the Multi-Plot vies.

To make sure the new settings are applied press the  to re-process the data.



## 2.15 Sercel VE464 SEG D

The Sercel VE464 can output special SEG-D files. These files can have detail of the vibrator control system's signals, including Reference and Force.

From Sercel VE464 Manual

VE464 file formats  
Signal Local Archive file >

### Signal Local Archive file

The "Set Config" function on the 428XL GUI (jVE464 window) allows saving up to ten signals to a regular SEG-D file, selected from the following:

**B**

- Mass Acceleration ( $\text{m.s}^{-2}$ );
- Plate Acceleration ( $\text{m.s}^{-2}$ );
- Force (Newtons);
- Reference (Newtons);
- Filtered Force (Newtons)
- Excitation (mA):
  - Torque Motor current,  $\pm 40$  mA;
- Mass LVDT (mm):
  - No offset correction;
- Valve LVDT (mm):
  - Main valve LVDT;
  - No offset correction;
  - Peak to peak maximum displacement is 6.6 mm;
- Plate 2 Acceleration ( $\text{m.s}^{-2}$ ):
  - No offset correction;
  - Channel can be used to record user signal;
  - Connect your signal on **Plate 2 Acc** connector pins **A & B**, ( $\pm 10$  Volts) on Break-Out-Box (see [Figure 2-16 — page 53](#)). Installation parameter *Baseplate 2 Mass* should be set to 0 (see [Figure 3-20 — page 80](#)).
- Overloads (0 or 1):
  - Value is 1 if one of following overloads is detected: Excitation, MassLVDT, ValveLVDT, Pressure, Force.

These SEG-D files have a gain factor of 3717 that must be applied to each trace for most SEG-D viewers.

To convert Newtons to pounds the data must be multiplied by 0.2248 Gain.

To Scale the Force into pounds requires a special scaling in the VibTest software.

The Newer VibTest software. Version 1.32 and newer automatically applies the 3717 gain to these special SEG-D files and converts the GF to pounds.

Enter 833.6 to Scale the Sercel VE464 -SEG-D file to convert Ground force signal Newtons to pounds with VibTest version 1.31 and earlier

Enter 1 to Scale the Sercel VE464 -SEG-D file to convert the Ground Force Signal Newton to pounds with VibTest version 1.32 and later.

The image displays two side-by-side screenshots of the 'Trace Definitions' dialog box in the VibTest software. Both windows have a title bar with 'Trace Definitions' and standard window controls. They share a common layout with a 'Trace Count' field, an 'Add Definitions' button, and an 'Import Definitions from Device Settings' button at the top. Below this is a table with columns: Trace Num, Vibrator ID, Trace Name, Scale, and Trace Type. At the bottom of each window are buttons for 'Add Trace', 'Traces Num', 'Remove selected Traces', 'Clear All', 'Ok', and 'Cancel'.

**Left Screenshot Table Data:**

Trace Num	Vibrator ID	Trace Name	Scale	Trace Type
1			1.0	None
2			1.0	None
3	28	GF_28	833.6	Vib Out
4	28	Ref_28	833.6	Vib Ref
5			1.0	None
6			1.0	None
7			1.0	None

**Right Screenshot Table Data:**

Trace Num	Vibrator ID	Trace Name	Scale	Trace Type
1	14	Referenc	1.0	None
2			1.0	None
3	14	GF	1.0	Vib Out
4	13	ref	1.0	Vib Ref
5		drive	1.0	None
6			1.0	None
7			1.0	None

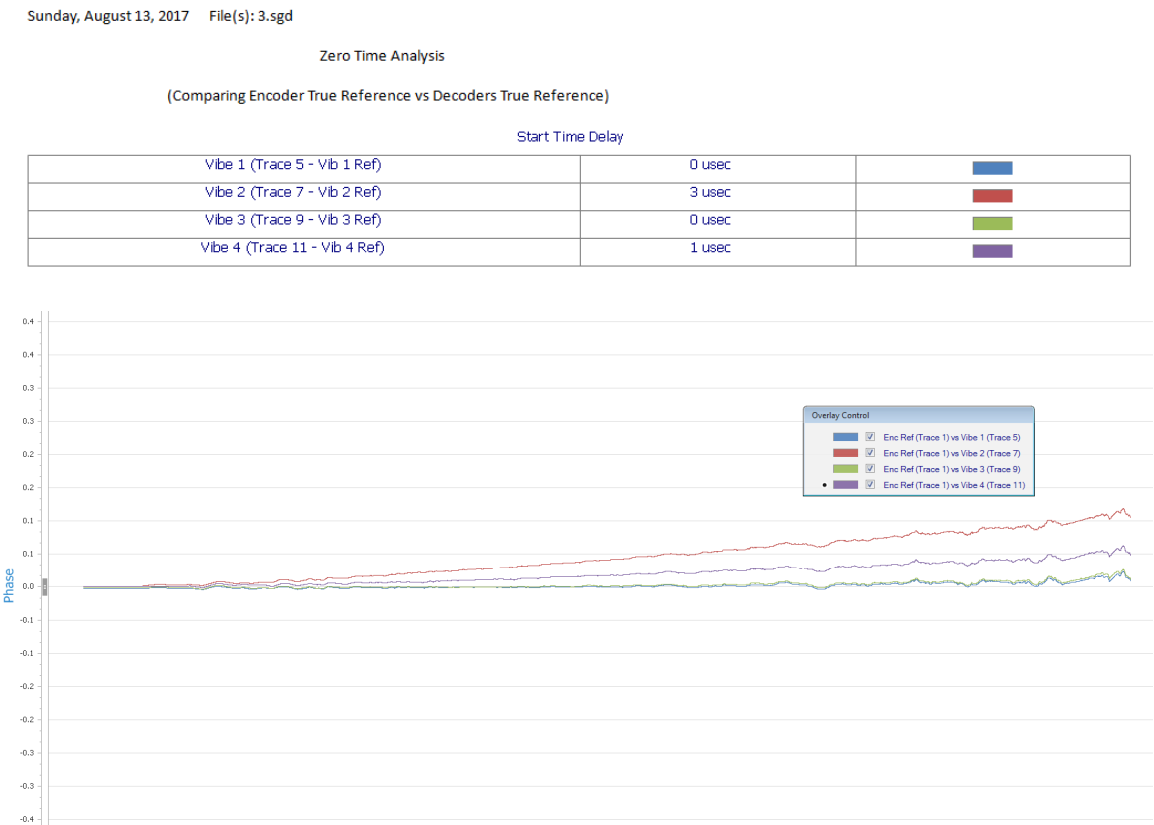
NOTE: For SERCEL VE464 records that have been recorded using the Sercel 428 recorder – USE 71.564 for scaling of the GF signal

The 833.6 scaling is only required when using the SEG-D files that are directly generated by the VE464

2.16 Zero Time Analysis

The Zero Time Analysis compares the Encoder Reference to the Vibrator Reference signals

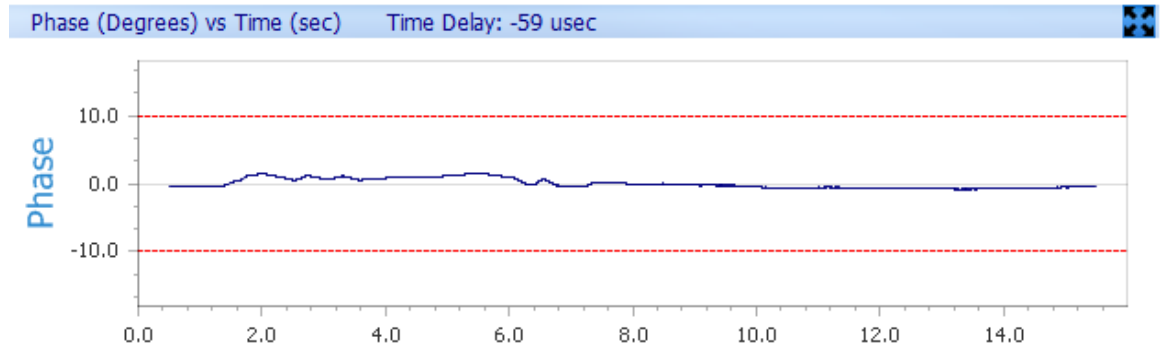
The Reference signals can be analyzed to show the delay between the two signals



### 2.1.17 Time Delay

The Phase plots also show a Time Delay.

This value is computed from the entire Phase analysis of the VibOut signal and the Signal selected for the Encoder Ref Trace (Settings- General Settings – sets channel for Encoder Ref Trace)



When analyzing the Vibrator output ( Ground Force) any phase error between the Ground force and the Encoder Reference will be computed in the average Time Delay of the signal.

In the example above the phase error between 2 and 6 seconds is all positive and is causing the time error to be reported as -59 usec. The vibrator has less than 3 degree phase error during this time, but because all of the phase error is positive for the entire sweep, the time error shows as a large number.

It is common to see time error of 100 or 200 usecs, even when the vibrator is performing well.

## 3.0 Force 3 and BD3 operation

The VibTest software can download data that has been saved in the Force 3 or Bird Dog 3 memory.

Set up computer with a fixed IP address of 10.0.0.101. See Ethernet Setup at end of this manual

### 3.1 Downloading Data

Connect a patch cable from the Windows computer running VibTest to the Force 3 or Bird Dog3 unit.

Press the download icon button



The Download dialog windows should appear. Press “Get List of Records” to show the stored records.

Download Dialog

**Download Records** Total : 2397

Unit Id: 5093 Refresh Get List of records

Filter Records Show By DateRange

From: 12:28:59 04 Dec 2014 To: 12:28:59 04 Dec 2014

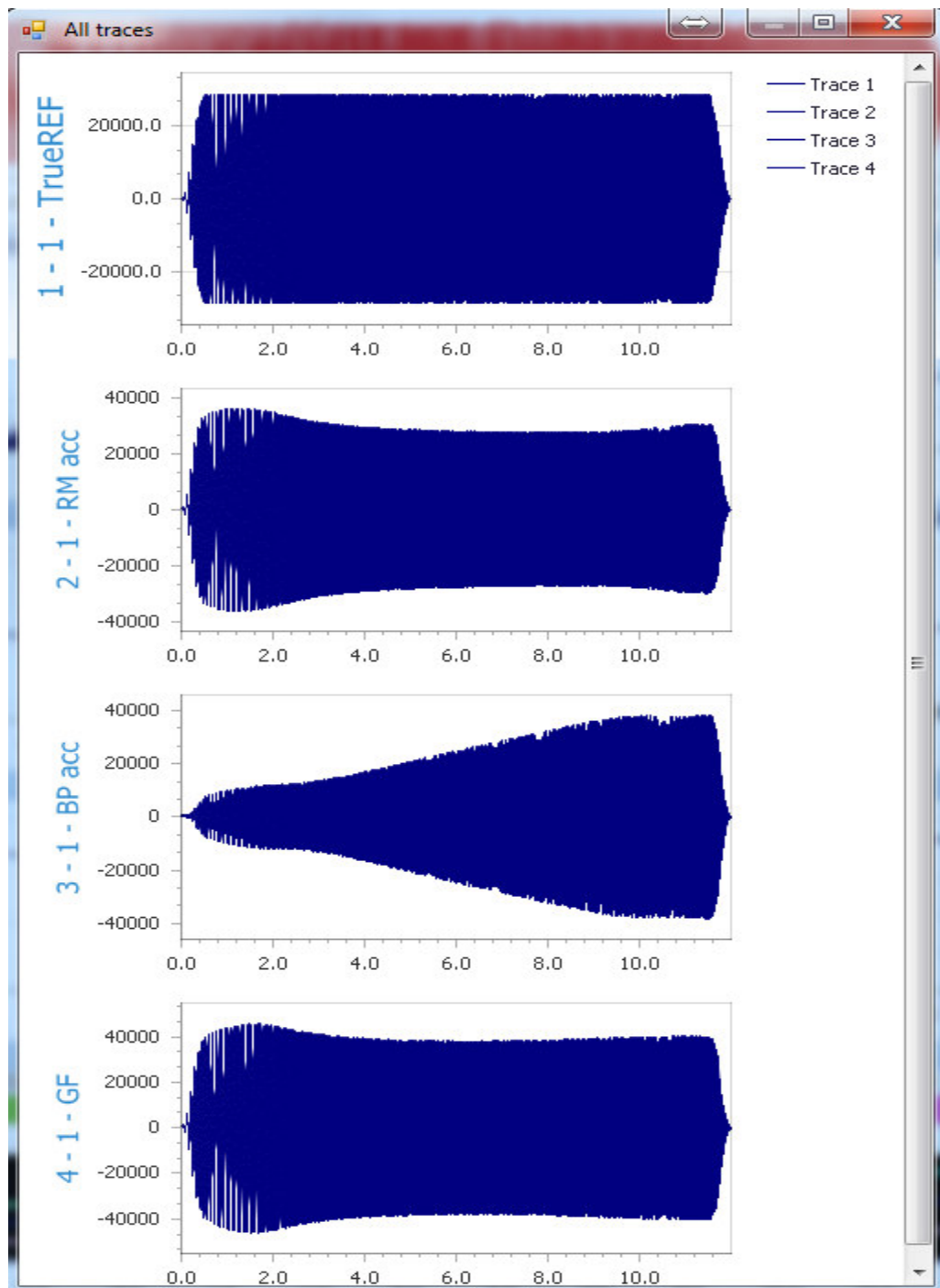
Rec#	Test DateTime
2000	10/16/2014 4:33:25 PM
2001	10/16/2014 4:41:25 PM
2002	10/16/2014 4:42:54 PM
2003	10/16/2014 4:46:57 PM
2004	10/16/2014 4:49:08 PM
2005	10/16/2014 4:49:40 PM
2006	10/16/2014 4:50:43 PM
2007	10/17/2014 7:35:09 PM
2008	10/17/2014 7:36:14 PM
2009	10/17/2014 7:43:49 PM
2010	10/17/2014 7:44:46 PM
2011	10/17/2014 7:49:30 PM
2012	10/17/2014 7:49:44 PM
2013	10/17/2014 7:50:29 PM
2014	10/17/2014 8:40:14 PM
2015	10/17/2014 9:55:22 PM
2016	10/20/2014 3:38:23 PM
2017	10/20/2014 4:36:12 PM
2018	10/20/2014 8:10:19 PM
2019	10/20/2014 8:13:39 PM
2020	10/20/2014 8:14:21 PM
2021	10/20/2014 8:15:31 PM
2022	10/20/2014 8:16:39 PM

Download Selected File
Close

Select the record and press the “Download Selected File” button at the bottom of the screen

The data from the Force 3 will contain 4 traces

True Reference, Reaction Mass Accelerometer, Baspelate Accelerometer, and Ground Force signal



## 3.2 Scaled Similarity System

Build-in Scaled Similarity System is designed to provide real-time scaled to vibrator weights signals for recording on external recording equipment. Signals are scaled not to exceed most of recording instruments input dynamic range and according to the Specifications in this manual.

Scaled Similarity Reference	1 V peak-peak ( $\pm 0.5$ V)
Scaled Time Break	0.3 V peak-peak (0 to + 0.3 V)
Scaled Similarity G. Force	2.5uV/1 lbf
Scaled Mass Force	2.5uV/1 lbf
Scaled Base Plate Force	2.5uV/1 lbf

To convert the GF voltage signal from Volts to pounds the data must be multiplied by 400,000. The data saved by the Vscope, SrcSig and VibTest software save the data in volts. So to convert to pounds every sample must be multiplied by 400,000.

Most of the seismic recorders save the data in millivolts and not in volts. So a value of 1 is equal to 0.001 volts. For these recorders the samples must be multiplied by 400

Scaling for standard SEG-D inputs

Trace Num	Vibrator ID	Trace Name	Scale	Trace Type
1	0	Ref	1.0	Enc Ref
2	0		1.0	None
3	0		1.0	None
4	0		1.0	None
5	1	Vib 1 Ref	400.0	Vib Ref
6	1	GF	400.0	LGF
7	2	Vib 2 Ref	400.0	Vib Ref
8	2	GF	400.0	LGF

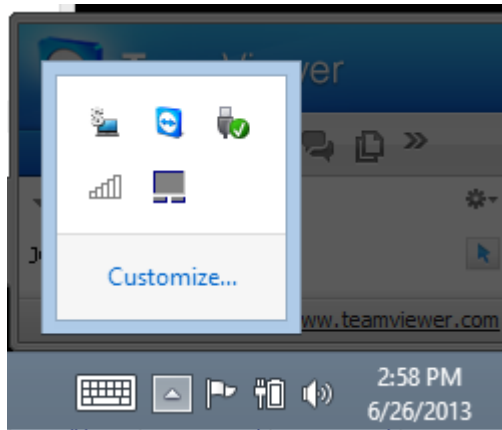


## 4 Windows Ethernet Setup

### 4.1 Windows 7 and Windows 8

With Windows 7 and Windows 8 there is normally a quick access to the IP settings

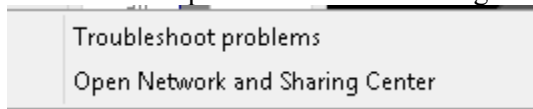
In the lower left hand corner, there are multiple icons.



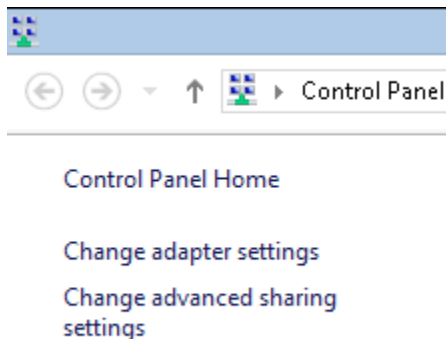
Right Click on the WiFi Icon



Then Select “Open Network and Sharing Center”



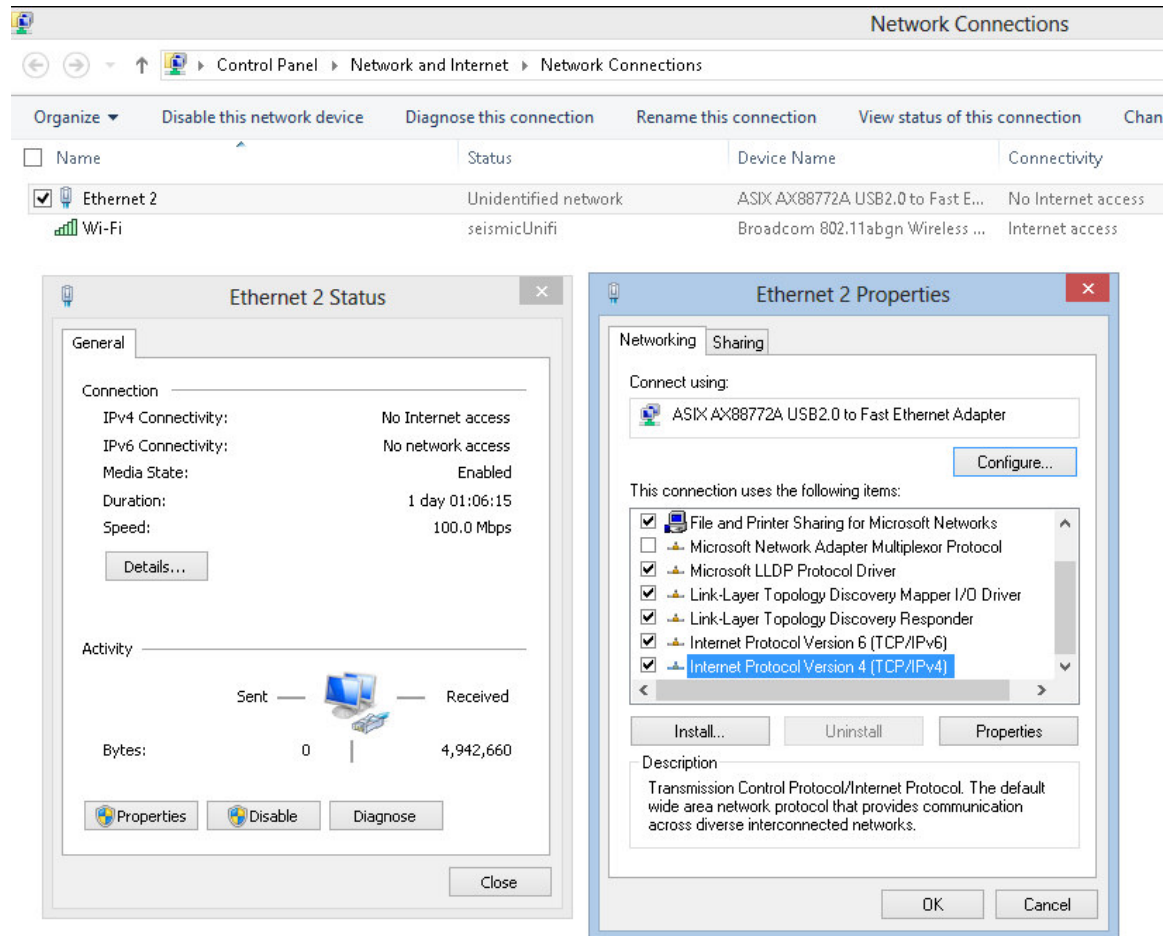
Then select “Change adapter Settings”



Double Click the Wired Ethernet used by the Bird Dog 3 unit

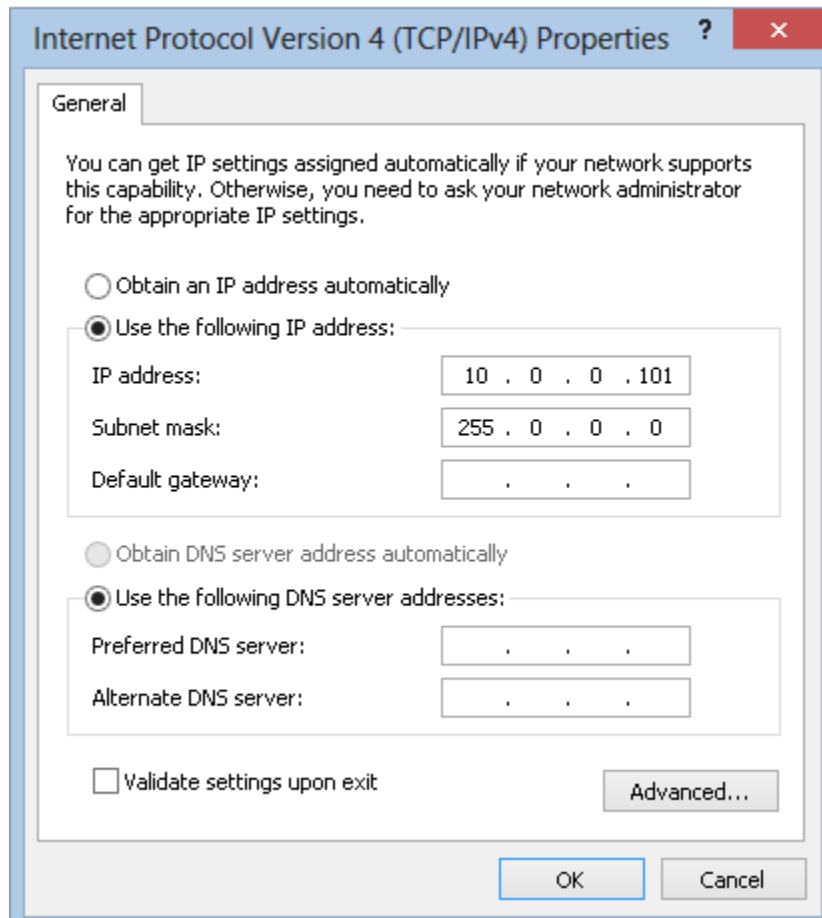
On the Ethernet status screen – click the “Properties” button at the bottom.

On the Ethernet Properties screen select the “Internet Protocol Version 4 (TCP/IPv4)”

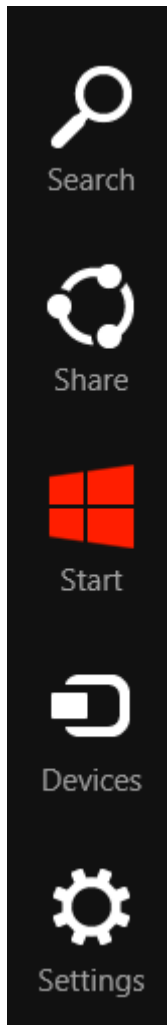


Then set the IP address to a fixed IP

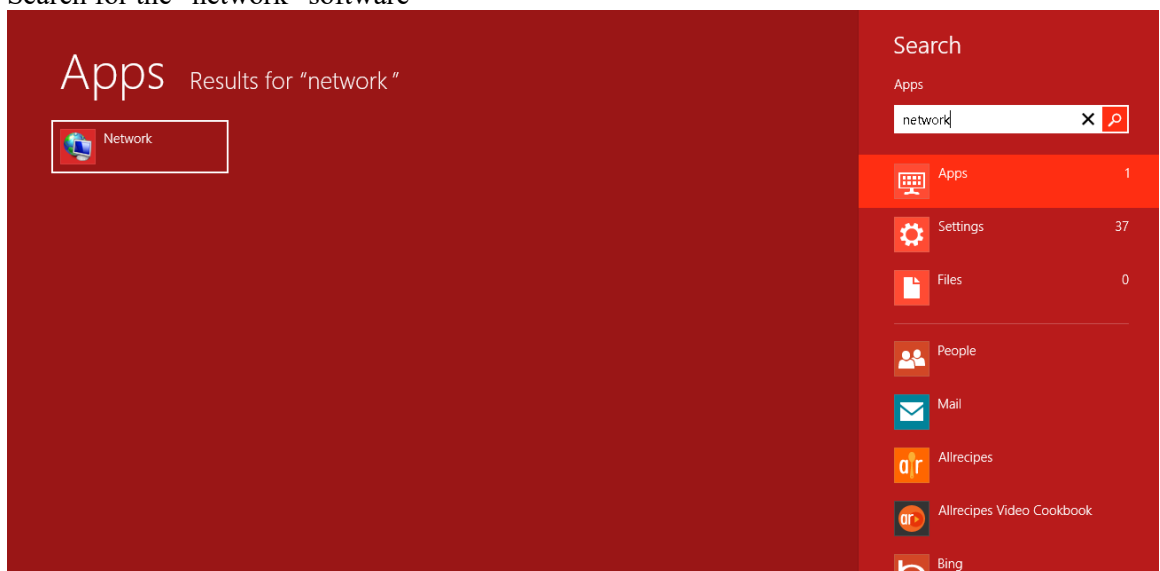
We suggest using 10.0.0.101 for the computer, with the 255.0.0.0 Subnet mask



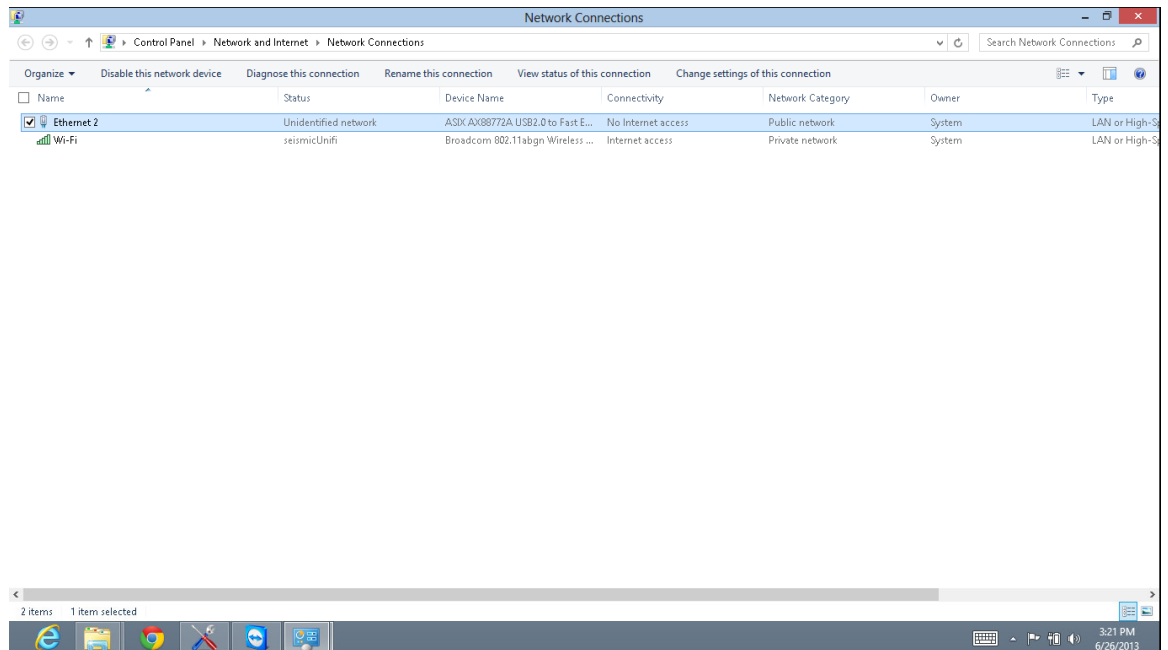
The Network selections can also be access via the windows 8 start menu.



Search for the “network” software



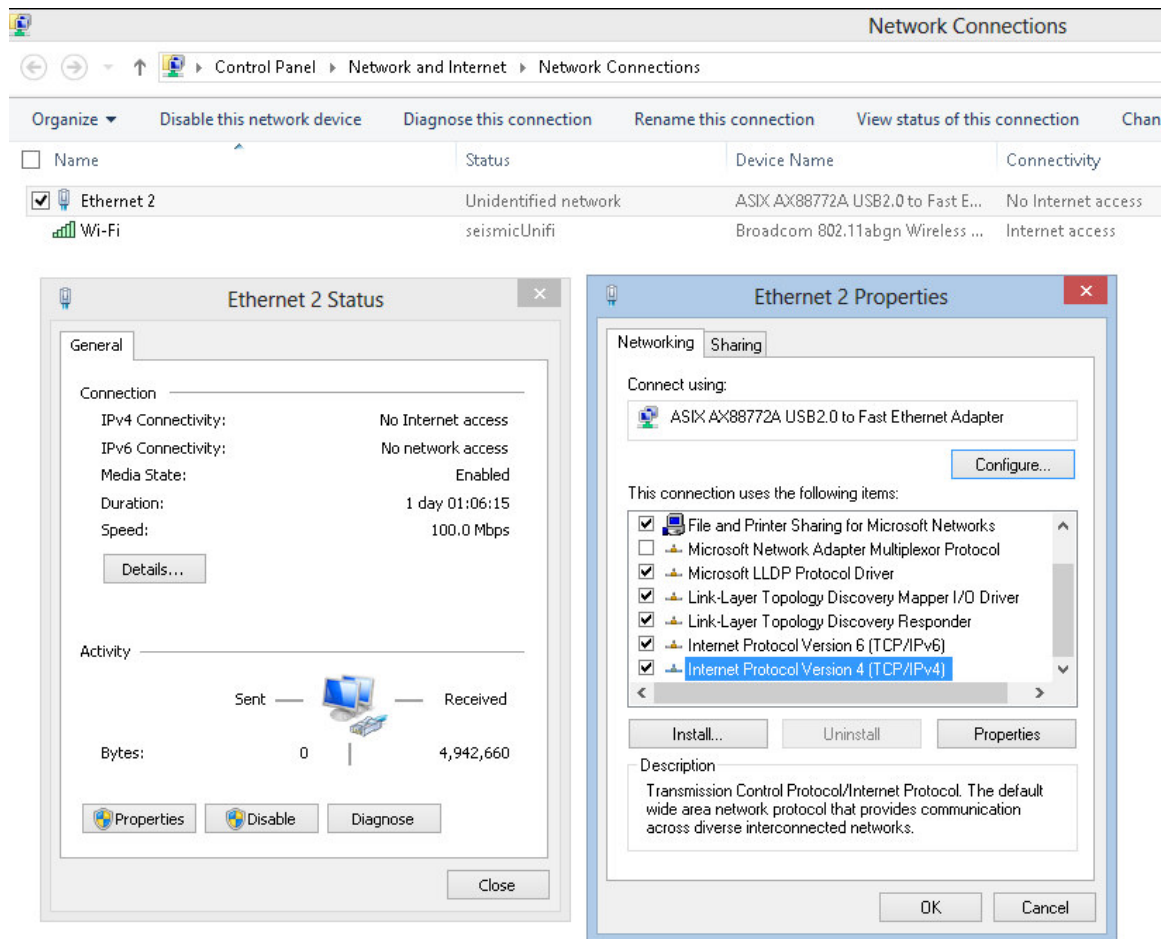
Click on the Network application



Double Click the Wired Ethernet used by the Bird Dog 3 unit

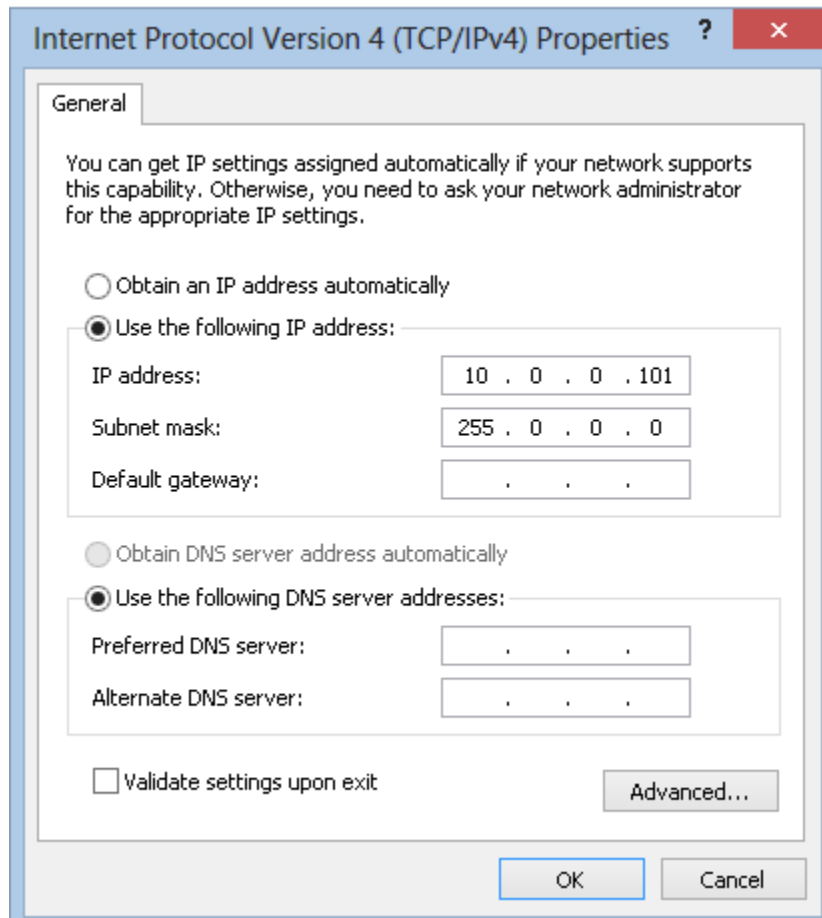
On the Ethernet status screen – click the “Properties” button at the bottom.

On the Ethernet Properties screen select the “Internet Protocol Version 4 (TCP/IPv4)



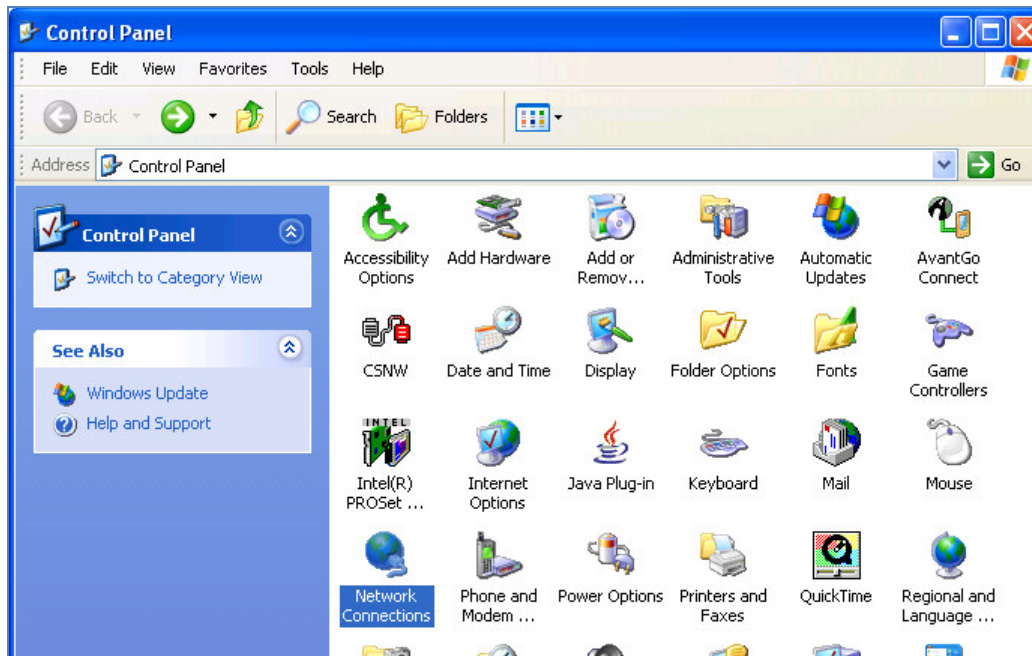
Then set the IP address to a fixed IP

We suggest using 10.0.0.101 for the computer, with the 255.0.0.0 Subnet mask



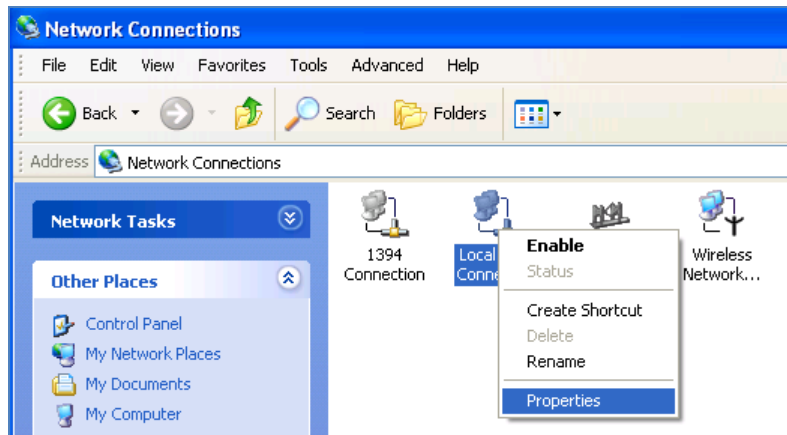
## 4.2 XP setup

With Windows XP computer setup in classic mode, the Ethernet setup is done by the following procedure:



Go to the Control Panel and open the Network Connections.





Right Click on the Local Area Connection Icon and select properties.

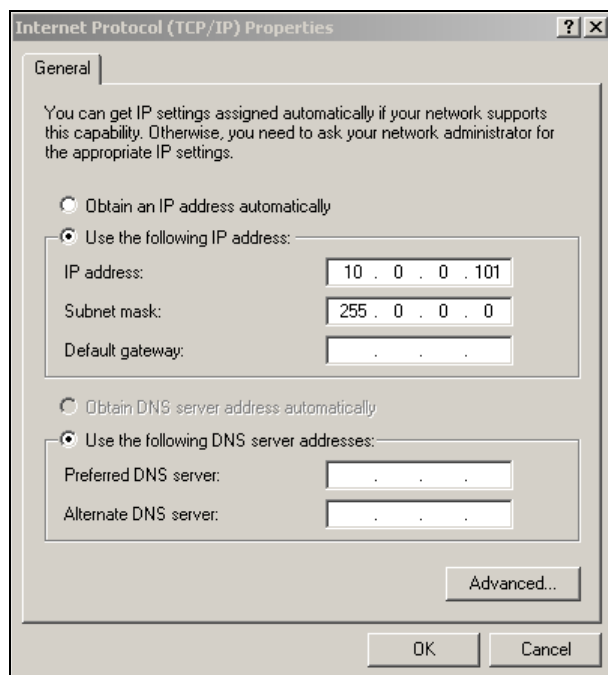
Scroll Down to the Internet Protocol TCP/IP selection and click on this icon.

Click on Properties button.

Use following IP address:

IP address        10.0.0.101

Subnet Mask     255.0.0.0



Press OK to accept entries.

It is sometimes necessary to reboot the computer to have the new address take effect.

If the BD3 Recording system unit was previously communicating with a computer with a different address, then the BD3 Recording system unit must be reset (power off then on) for the unit to communicate to the new address.

With Windows XP there is an additional Authentication Tab. The Authentication must be disabled to operate with the Sigma Recording system unit.

### 4.3 Windows 2000 Ethernet Setup

With Windows 2000 computer this can be done by the following procedure:

Right Click on My Network Places and select Properties.



Figure 2.1 Network Properties

Right Click on an icon that corresponds to your network card and select Properties.

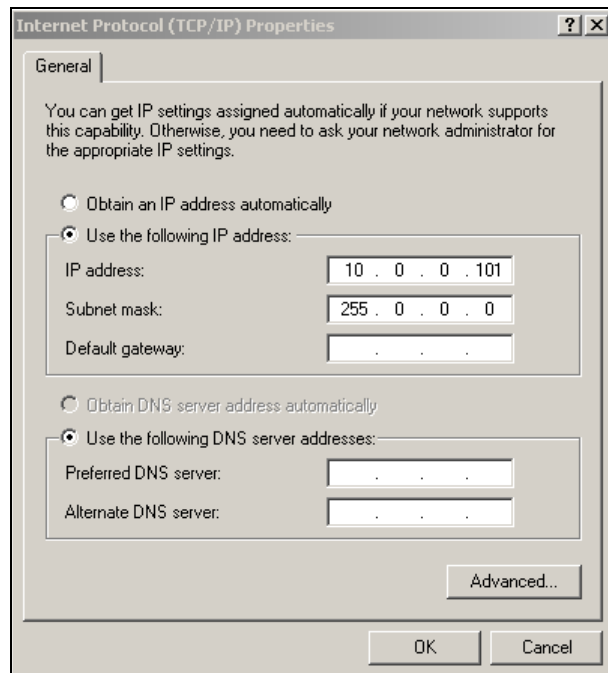


Figure 2.2 IP configuration

Select Internet Protocol (TCP/IP) and click on Properties button.

Use following IP address:

IP address      10.0.0.101

Subnet Mask    255.0.0.0

Press OK to accept entries.

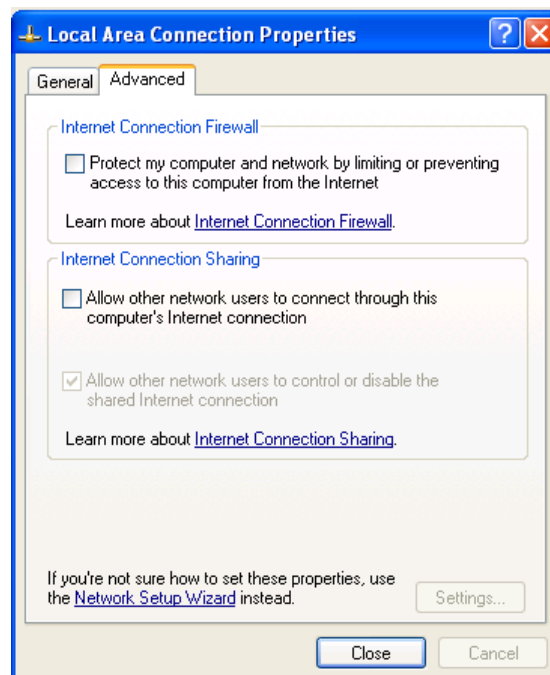
It is sometimes necessary to reboot the computer to have the new address take effect.

If the Sigma Recording system unit was previously communicating with a computer with a different address, then the Sigma Recording system unit must be reset (power off then on) for the unit to communicate to the new address.

## 4.4 Firewall

It is important to disable all Firewalls on the computer. Third party firewall from Norton, McAfee or other companies can completely disable the operation of the BD3 Recording system unit. Typically the Firewall will allow the “ping” command to operate, but will block all other commands and messages.

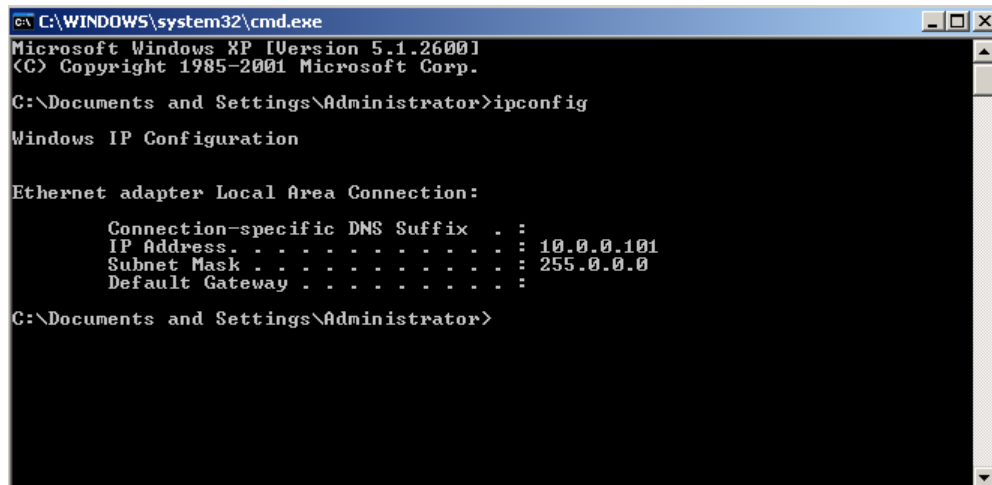
There is a built in Firewall with Windows XP. This should be disabled. Go to the Advanced Menu of the Local Area Properties and disable the Firewall.



Typical Firewalls will ask if the program should be “blocked”, always select “Unblock this program” if asked.

## 4.5 TCP/IP Verification

To verify that the IP address is correct, select “Start”, then “Run”, then type in “CMD”. This starts the command prompt in Windows (This is similar to the old DOS command prompt). Type the command “ipconfig”. The current ip address 192.168.0.101 should be shown.



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Administrator>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : 
    IP Address. . . . .               : 10.0.0.101
    Subnet Mask . . . . .            : 255.0.0.0
    Default Gateway . . . . .        : 

C:\Documents and Settings\Administrator>
```

Viewing the Network Tab at the bottom of the Vscope program can also check the IP address.

Comment	Record Info	Plot Info	Status	Errors	Communication	Network
Adapter Desc: Intel(R) 82567LM Gigabit Network Connection - Packet Scheduler Miniport						
IP Address: 10.0.0.101						
IP Mask: 255.0.0.0						
DHCP Enabled: No						
***						

The Network Tab shows the current IP address detected by the Vscope program.

Also if the Bird Dog 3 unit was previously communicating with a computer with a different address, then the Bird dog 3 unit must be reset (power off then on) for the unit to communicate to the new address.

With some of the Windows versions there is an additional Authentication Tab. The Authentication must be disabled to operate with the Bird Dog 3 unit.