Segy Header Scanner …. a very simple, but useful Segy utility

The Segy Header Scanner is a very basic routine to verify that a Segy file can be read....all the way through. For Quantum Earth this is important because Segy files are used as binary files for input and output. This usage of Segy files as binaries is designed to get past a "load step," involved in creating internally loaded proprietary seismic data files. Running the Segy Header Scanner is required before running the flat spot package, the AVO outliers packaged or the Segy Clusterer package. Each of these must have a ".lns" file in place to be able to read and write Segy files.

This program is written in Java (Sun Trademark now part of Oracle). It needs version 1.6.0.1 or later to run. Please download the JRE from Sun's website if you need to. As a Java program, it has been run for several years on Windows, Linux and Solaris 10.

Output

The Segy Header Scanner will optionally output:

1. A ".csv" file holding summary information that can be viewed using Excel or OpenOffice. Calc. Some people run the Segy Header Scanner just for this summary information.

2. A map showing live and dead areas around or within the 3D. (Turn this off if you don't need a map...It does slow things down.)

3. A ".lns" file is a "Line Summary Set" file. It mostly holds pointers, but also has geometry and amplitude information. It is a set of Java Objects that must be read using QEC software.

Each of these outputs can be individually turned on or off using Radio Buttons in the graphical user interface.

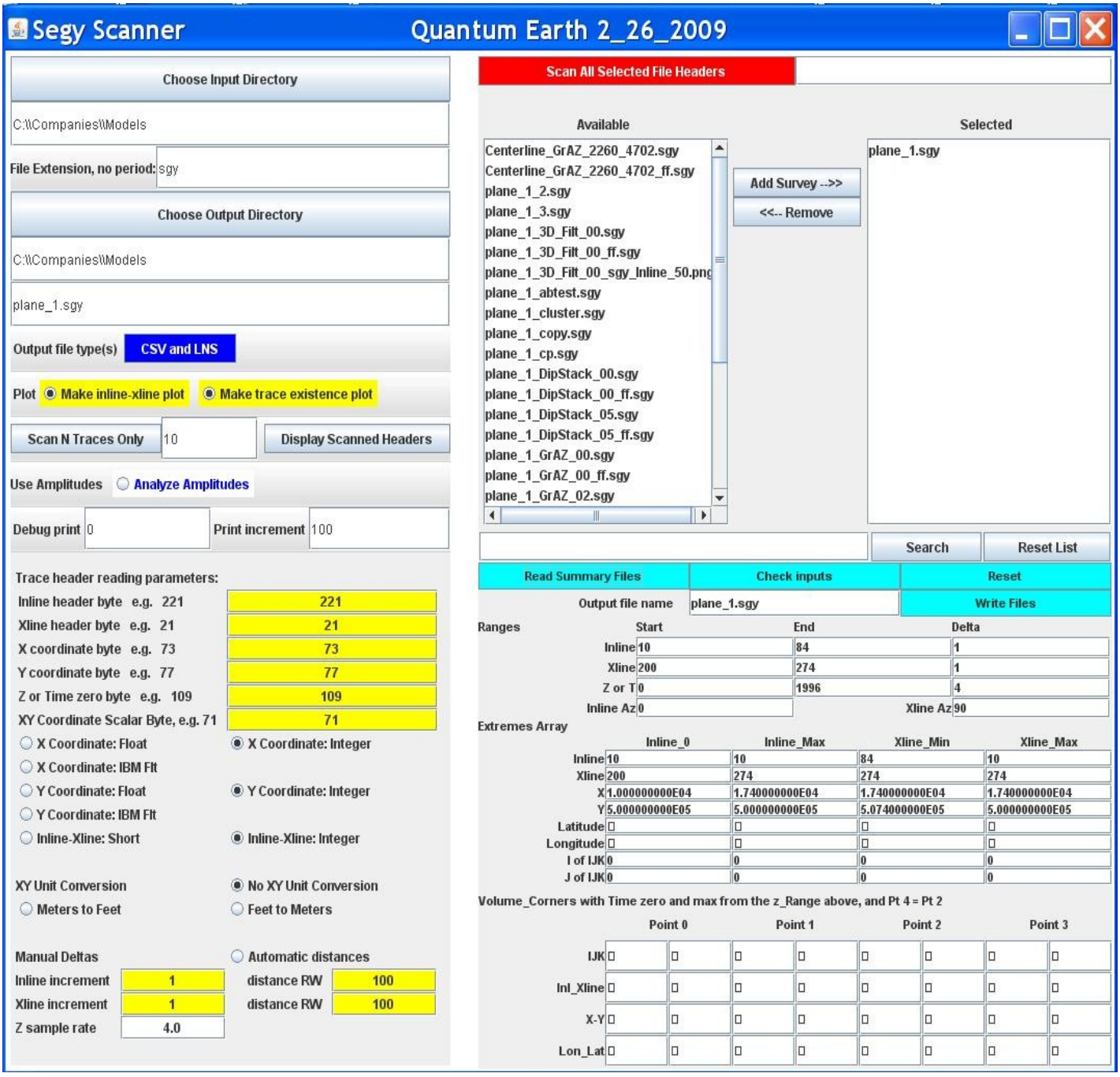
Please see the examples, below.

Input and running

The main thing that the Segy Header Scanner needs is the byte locations for the Inlines, Xlines, Time-Zero and their formats. These are called the "Trace header reading parameters:"

To assist in this, after picking a file, you can "Scan N Traces Only." This will read the first N traces (10 is the default) and the last trace in the dataset. You can look at the byte numbers on the left and the changing in the data fields (or lack of change) to help pick out byte locations.

To run, you hit the red button at the top on the right, "Scan All Selected File Headers." If you have more than one file name in the "Selected" list, the program will try to scan everything in the list, one after another.



In terms of the Inline increment, Xline increment, and real world distances ("RW"), you can put them in by hand using the radio button that starts out saying "Automatic distances." In the automatic mode, the program tries to infer these deltas and distances using the values found in the trace headers.

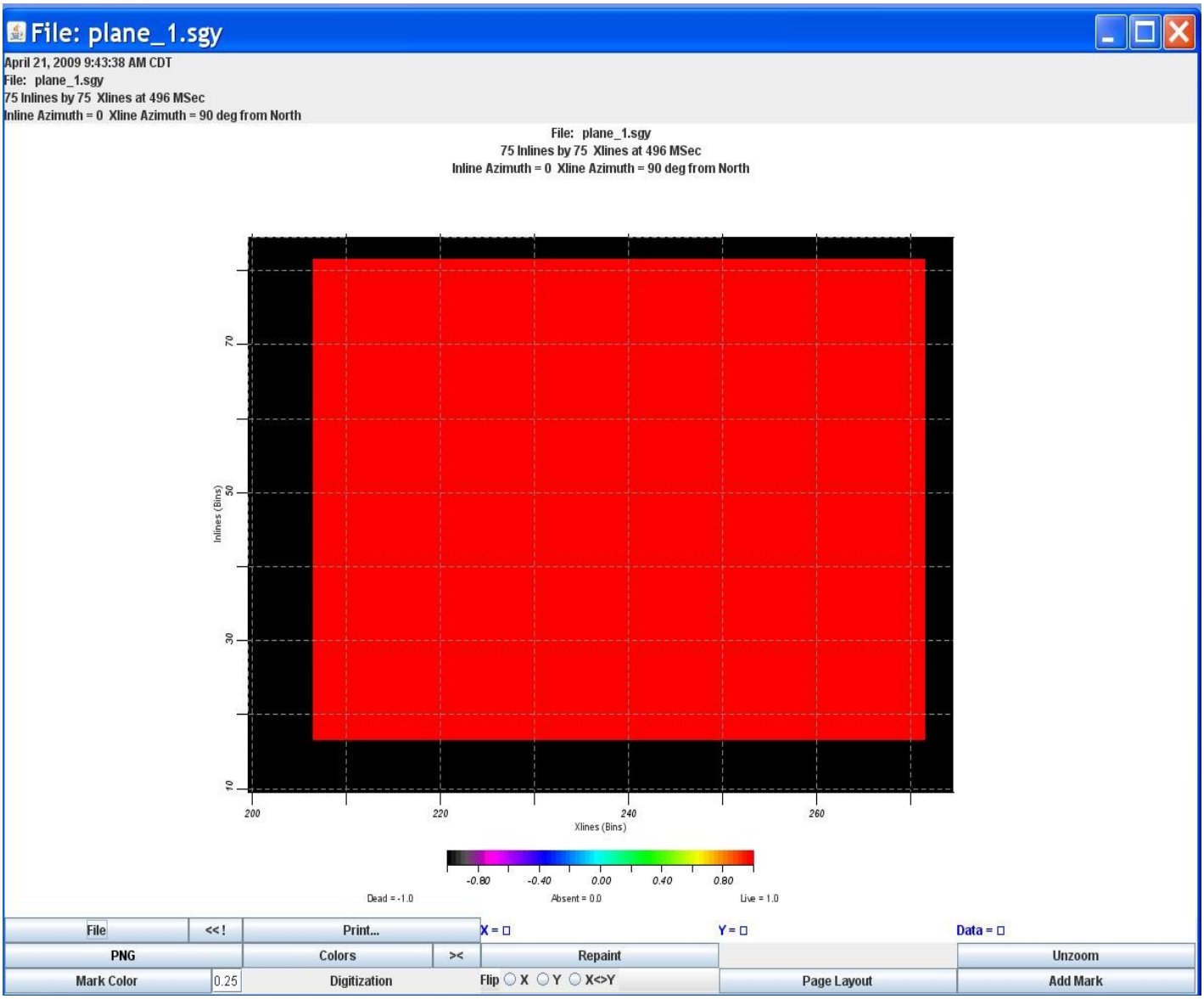
Sample Output from the Csv file

C:\\Companies\\Models\\plane_1.csv

0	1	2	3	4
Time	21. April 2009 09:43:37 CDT			
Directory	C:\\Companies\\Models\			
Input file	plane_1.sgy			
This file is	regular in	delta Inline,	delta Xline	and number of samples per trace
Reel Header	Byte	Value		
Sample rate	3217	4.000000E00		
Number of samples	3221	500		
Sample data code	3225	1		
Revision number	3500	0		
Inline_Xline_Format	Integer	1		
XY_Unit_Conversion_Factor	No change	1.000000E00		
Trace data	Byte	Minimum	Maximum	Delta
Inline	221	10	84	1
Xline	21	200	274	1
Time - Depth	109	0	1996	4
Traces	5625	Samples	2812500	
Live Traces	4225	Zero Traces	1400	
Live Samples	334929	Zero Samples	2477571	NaN= 0
Mean Amp	-8.586648E-11	StDev Amp	2.739177E-02	Live samples only
Minimum Amp	-2.325766E-01	Inline= 17	Xline= 208	Z= 1104
Maximum Amp	2.228055E-01	Inline= 17	Xline= 208	Z= 1116
Delta Inline	Distance	100	Azimuth	0
Delta Xline	Distance	100	Azimuth	90
Coordinates	Byte	Inline	Xline	Value
X(0)	73	10	200	1.000000E04
Y(0)	77	10	200	5.000000E05
X(1)	73	10	274	1.740000E04
Y(1)	77	10	274	5.000000E05
X(2)	73	84	274	1.740000E04
Y(2)	77	84	274	5.074000E05
X(3)	73	10	274	1.740000E04
Y(3)	77	10	274	5.000000E05

Note where it says that this file is regular in inline, xline and samples per trace. This means that there are no skips in the data, holes in the dataset or traces that have different lengths.

Sample Map with live traces in red and dead or holes in black



Note that the button tool bar at the bottom can be used to print or save images. In particular, "<<!" is a button that will save a quick png file to the default directory. The file format can be changed by hitting the button that says "PNG" in this example.

Last: 4/21/2009